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Technical Specifications: PageMaker for the PC

System Configuration:

The recommended configuration for PageMaker is a PC AT® or compatible with at least 512K RAM, a

10MB or larger fixed disk, an Enhanced Graphics Adapter or Hercules™ Graphics Card (or other Windows-compatible display), and a Windows-compatible "mouse" pointing device. PageMaker will operate on any PC AT compatible that runs Microsoft Windows™.

Output Devices: PageMaker supports both the PostScript® and DDL™ page description languages on printers that support those standards. In addition, PageMaker supports the Hewlett-Packard LaserJet and LaserJet+ printers; the Allied Linotype® Linotronic™ 100 and 300 imagesetters; and a wide range of dot matrix and laser printers that operate under Windows.

Software Support: PageMaker accepts formatted text files from Windows Write, Microsoft Word, WordStar® 3.3, MultiMate™, XyWrite III™, WordPerfect™ and IBM DCA Format Files, including DisplayWrite3™, WordStar® 2000, Volkswriter 3™, Samna Word™ and Lotus Manuscript™. PageMaker also accepts ASCII files from other word processing programs. PageMaker places graphics from Windows Paint, Windows "Draw!"™, In* A* Vision™, PC Paint™, PC Paintbrush®, Publisher's Paintbrush, MacPaint™, AutoCAD®, Lotus 1-2-3® and Symphony® (PIC format), PostScript and Windows GDI Metafiles (the Windows clipboard).

Windows Support: PageMaker runs under the Microsoft Windows operating environment, which is bundled with the product. Through Windows, PageMaker supports a wide and growing range of software and peripherals.



Technical Specifications: PageMaker for the Apple Macintosh

System Configuration: The recommended configuration for PageMaker 2.0 is a Macintosh™ Plus with a hard disk, Macintosh II or Macintosh SE. Minimum system configurations that support all functions are a 512K Macintosh with a hard disk, or a 512E with an 800K external drive.

Output Devices: PageMaker supports the Apple® Image-Writer®, LaserWriter® and LaserWriter Plus printers; the Allied Linotype Linotronic 100 and 300 imagesetters; and other PostScript-compatible output devices.

Software Support: PageMaker directly accepts formatted text files from MacWrite™, Microsoft Word, Microsoft Works, and WriteNow™, as well as unformatted ASCII text files from other word processors. Installable import filters and third-party conversion programs will be available to allow placement of formatted files for additional PC-based word processors. PageMaker directly accepts graphics files from Adobe Illustrator™, MacPaint™, MacDraw™, MacDraft™, FullPaint™, Cricket Graph and Cricket Draw, other PICT (picture-formatted) applications and PostScript. PageMaker also accepts graphs, charts, spreadsheets, clip art and material from virtually all other Macintosh programs through the Macintosh Scrapbook or Clipboard.

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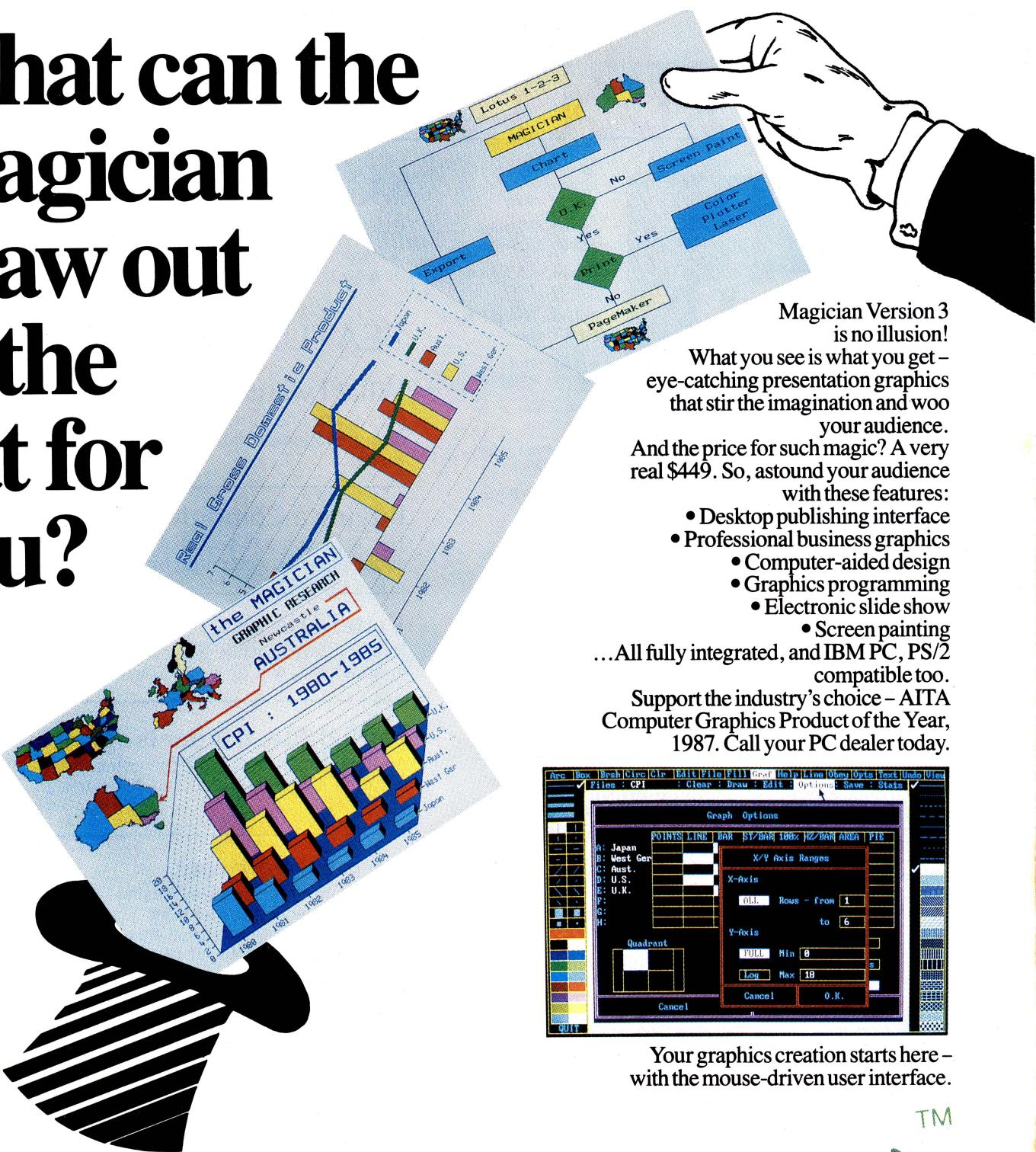
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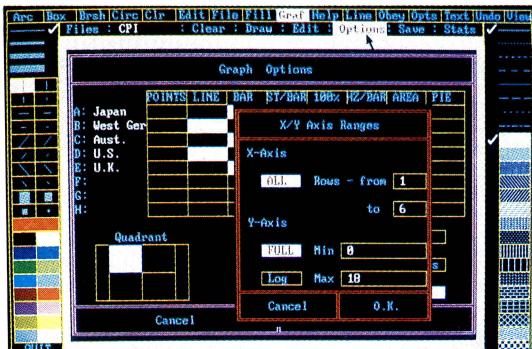
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EDITOR'S CHOICE

JUNE, 1987

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Put your money where your mouth is!



IDON'T WANT to whinge,' said Chris Howells, managing director of modem manufacturer, Netcomm Australia, 'but, as someone who is at the coal face with a proven record for profitable progress, I do want to make constructive criticisms!'

He whinged. But he did it gently enough to not offend those who disagreed, and interestingly enough to make me sit back and think about the lack of 'put your money where your mouth is' from those who say local high-tech industry should be encouraged.

He was speaking at the release of two exciting new products, the Pocket Modem (which we have reviewed this month) and the Netcomm Program Version 3 (one of the best comms packages I've seen). It was Netcomm's first 'formal' press launch, so perhaps Chris just wanted to make the most of the occasion.

In a few situations his exaggerated examples detracted from his arguments: 'It's illegal to import weapons like flick knives, drugs like hashish, and communications devices like cordless phones. But unapproved modems — no problems.'

Overdone, I agree, but the point is valid. It probably costs Netcomm upwards of \$20,000 in R&D, engineering time, 'bureaucracy' time, manufacturing costs and straight cash outlay (fees, not bribes!) to gain Telecom approval for each of its new products, yet anyone can import and sell non-approved modems without worry. It's illegal to use them, of course, but you have to get caught.

If there is a serious and valid requirement for Telecom approval — and those stated include the safety of Telecom technicians who might get zapped by runaway voltages — then there should be a serious attempt to stop the importation of 'dangerous' unapproved modems.

There are perhaps many possible answers to why it is difficult to 'ban' their import or sale, but it's amazing to find Telecom has promoted these products. A non-approved modem sold

here was recently featured in Telecom's own magazine, which also accepts advertising for these 'illegal' modems (something like the Cancer Council taking cigarette advertising?). Pick me up off the floor ...

Things like that make Chris Howells' examples seem so much more valid. It was, after all, no ordinary whinge. Had it been 'the world is out to get me' from a failing company, it could have been more easily dismissed. But, as he said, Netcomm has a proven record of profitable progress.

It is a great success story. Netcomm started with the sale of locally developed communications technology to Apple in the US and quickly grew into the market leader in Australia with a wide range of excellent modems. It has an active OEM program, with 30 per cent of its revenue coming from companies like Apple, Commodore, Compaq, Data General, ICL, NEC, Sharp and Toshiba. It has 45 per cent of the local market, is an increasingly active exporter, has grown to a \$10 million company with no external borrowings, and looks like doubling its size again in the next 12 months — if it can avoid some of the unnecessary obstacles.

'We are now in a position where the size of the Australian market is starting to constrain our growth potential. When Hayes negotiates for components it buys 400,000 pieces, we buy 50,000,' Howells said.

'In the context of these domestic market limitations, we are occasionally frustrated with continuing Federal Government, semi-government and State Government purchases of imported product.'

Netcomm is not hurting. It will continue to be a success story, whether it gets everything it wants or not. Perhaps it is even being greedy. But if Netcomm feels this lack of support so badly, the implications for potentially successful not-so-high-flyers in the Australian high-tech industry are serious ...

MATT WHELAN

CANBERRA COMMENT

Report On Schools And Computers

Australian schools now have a plan for their computer needs until the 1990s. The National Advisory Committee on Computers in Schools (NACCS) recently released a report setting out school requirements.

Software packages schools need include generic software, a variety of programming languages, communications software plus purpose designed software.

Generic software used by business and government administrators is criticised in the report for being too complex or too expensive for schools. Commercial spreadsheets, databases, word processors and graphics packages need simpler and cheaper school versions. NACCS also suggests the community, as well as schools, is up against a similar problem with expensive software.

The word processing packages schools want must include note taking and report writing features. Also important for schools are packages which contain different type faces, plus different character sets for foreign languages, maths or music.

School software needs more power for tasks such as recording, storing, sorting or retrieving research information. Software which can plan an inquiry by organising questions or construct logical lists of ideas is also essential.

The report stated communications software was vital for schools. The databases schools want to use include AAP news for current affairs, the Australian Education Index, as well as Viatel and other video-texts.

A communication network linked with other schools is also important. This could start through school subject bulletin boards.

Expert systems which develop skills in areas such as reading, writing and clear thinking will also help students. Modelling to show cause and effect or analysis of results is another software need.

School hardware essentials are also spelt out in the report. Many parents

Jobs in service industries will continue to grow while the number of semi-skilled positions shrinks. However, the DEIR believes jobs now created through computer technology will not be filled by the workers who have lost their jobs elsewhere.



thinking about buying a home PC are influenced by what the local school uses. However schools have special needs which the home buyer will not consider.

One PC in a school is less than useless so school PCs must be cheap enough to buy in large numbers. The PC components must be childproof, although one principal of a large high school thought 'teacher' proof was more to the point. Generally the hardware should be easy to connect up without problems of disconnecting accidentally.

Computers which are fussy about hot,

cold or dusty conditions will not do well in the average Australian school. Schools also want PCs to support peripherals such as video disc, robots and scientific machines. Fast PCs are favoured too. Speed for accessing data and printing are specially mentioned. Schools also want portable PCs which are battery driven.

Because of the many school break-ins, security is important. School computers should be easy to lock away.

PS/2 for Agricultural Economics

The Bureau of Agricultural Economics (BAE) has recently bought its first IBM Personal System/2 (PS/2). According to spokesman, Rod Davey, the BAE hope to have their PS/2 running shortly.

The PS/2 is a natural extension for the Bureau's existing network of IBM ATs. Earlier this year they set up 50 ATs in a network linked to their IBM mainframe.

Davey commented that the AT's 640 kilobytes of memory hit the limit much sooner than expected, hence the interest in PS/2. The speed for downloading from the mainframe with ATs was also slower than expected. The PS/2s are earmarked for areas of the network which need faster responses. The main problem at present is the Bureau's typing pool when all 10 ATs are trying to download off the mainframe together.

Heather Knight, a computer services officer with BAE, said the two software packages now in use were WordPerfect and Lotus. They evaluated Microsoft Word, Wang and Display Write when choosing software. However Knight, believes WordPerfect does scientific symbols best because it builds special characters. As well, it has many levels of subscript and superscript which are important for scientific writing.

All the scientific staff at BAE have a PC AT on their desk. The network gives them Electronic Mail, messages, bulletin boards and diary dates for meetings.

A few people did not use the network for every message, preferring the personal approach of walking along to another office. Overall, however the AT network was successful. All the Bureau's ATs are linked

to NEC printers with groups of three ATs sharing a printer.

Commenting on access to databases such as CSIRONET, Heather Knight said line transmission was too slow. They preferred instead to buy tapes.

When the software for the PS/2 comes out next July, the BAE will probably have 10 PS/2s networked in the typing pool. This will give them faster access to the mainframe. Before buying the IBM AT network the Bureau used a Wang system.

Jobs For The Boys?

A Department of Employment and Industrial Relations (DEIR) study says computer technology is eliminating semi-skilled and unskilled jobs. People in rou-

tine semi-skilled jobs are most in danger according to the DEIR.

Jobs in service industries will continue to grow while the number of semi-skilled positions shrinks. However, the DEIR believes jobs now created through computer technology will not be filled by the workers who have lost their jobs elsewhere.

Overall the employment scene is difficult for Australia. Computerisation of most office work will show a reduction of employment there.

In 1979 a single business letter cost between seven and eight dollars to produce. Since then office productivity has risen only 4 per cent compared with the rise in manufacturing industries of 90 per cent. A

report from Siemens of West Germany says that there was at least 25 per cent of office time which could be computerised.

The US trend is for the lowest paid jobs, for example, fast food servers or cleaning, to be growth areas. Another trend is for part-time or casual work. As computers take over more complicated jobs, low paid part-time workers are brought in to do the remaining work. The banking industry is an area where this is already happening.

As well, a computer driven manufacturing plant has the flexibility to be quickly reprogrammed for new product lines — the costly resetting of equipment is no longer necessary. Companies can employ a small number of permanent staff then bring in casual workers at peak periods. □

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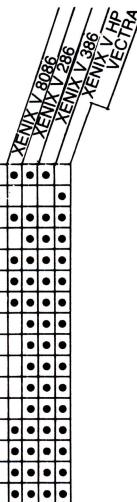
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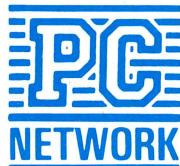
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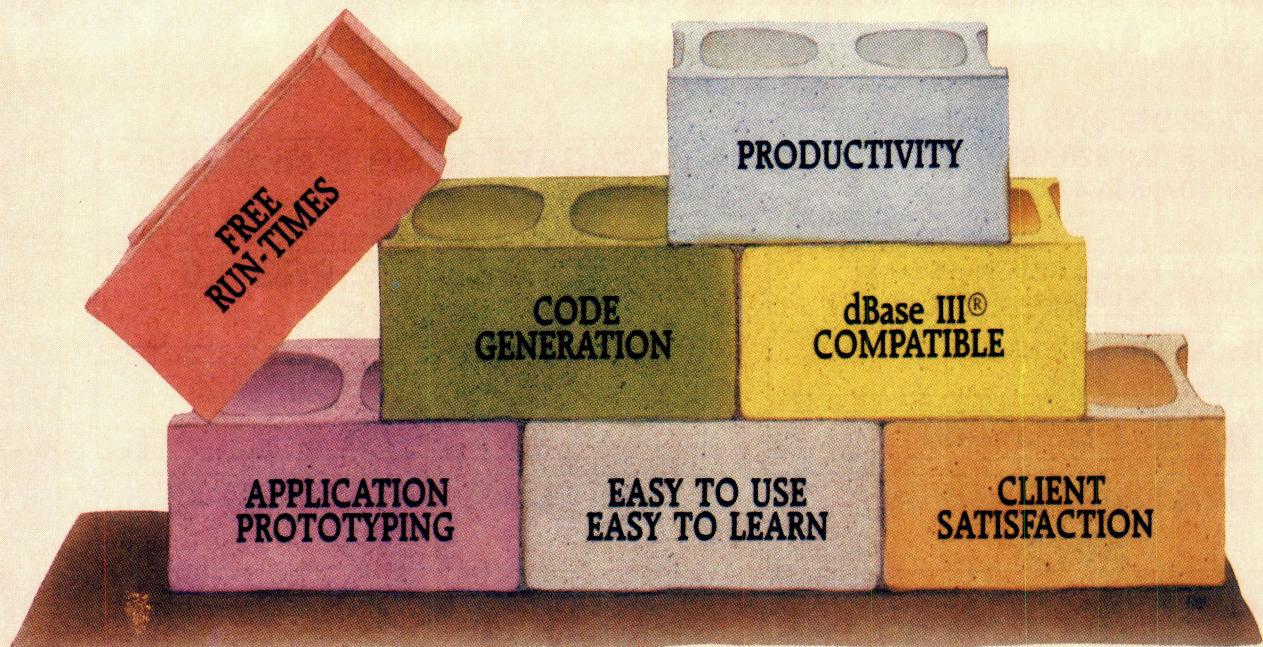
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American Graffiti

Naturally, Christmas just wouldn't be Christmas without a column about computer gifts. Shopping for computer users and hobbyists, and by them, strikes me as something of a delicate subject. Computerfolk often seem so wrapped up in their computing that one wonders when and how they'll find time to use whatever non-digital toys they receive. And sometimes, they seem so preoccupied that it's hard to know if they're fully aware that Christmas is approaching.

Here are a few suggestions to make it easier to shop for computerists — and perhaps to help them shop.

An excellent first step is to sit down with a glass of your favourite fermented or distilled beverage (for those of age!) and scrutinise the ads in *Your Computer*. And I do mean scrutinise — the ads contain a wealth of interesting suggestions that might easily escape attention if you're just wandering around looking for ideas that strike your fancy. There are plenty of things in these pages that you might not otherwise think about, and that you won't find on display in many stores — MIDI-related stuff for the musical, for instance, or electronics kits for the dexterous.

For those on the receiving end, a good first step is to make it easier for the givers in your life by appropriate hinting. There are several ways to do this with subtlety. For example, if others in your household use your computer, you might casually leave a copy of your 'wish list' on the screen, and/or on a diskette, with appropriate labelling. Last year, one friend created his wish-list, which he called MY-WISH.LST, and 'casually' left a copy on every one of his floppies. (His wife eventually found the file on one disk, added a few snide comments to make it more realistic, and left it on the disk, where he eventually read it.) A variation on the 'leaving-it-lying-around' ploy is to make sure the file accidentally gets included amongst other printouts, or transmitted from or to an appropriate target.

For those on the giving end, the watchword is vigilance and attentiveness to the hints your Significant Others are dropping, and a certain cautiousness in gifting. If someone you know has been mooning

and drooling about a major piece of software, and you're thinking about making wishes come true, remember that in many respects software, especially big-league software, can be a very personal thing. Make sure before you buy that the person has actually mentioned a specific product name, version and so on.

There are a couple of things I think are absolutely indispensable for any computer user to have. First off, for IBM users, is a copy of The Norton Utilities — this package of utilities will pay for itself (at the very least, in saved frustration and emotion), the first time it's used to recover a mistakenly deleted file. It does a whole bunch of other things, too, like helping maintain directories and disks in proper shape. There is undoubtedly a counterpart to the Norton Utilities for all you Amiga, Atari, C64 and other users out there — you may have to look a bit.

Another item in my 'indispensable' category is membership in a Shareware or Public Domain software organization. There are some terrific bargains to be had from these outfits; look around, and you're sure to find something worthwhile.

Another idea that may sound a bit strange, but is actually a dandy for anyone with lots of floppies, is a few packages of small labels, in different colours and/or shapes. Each floppy gets a label of a different colour or shape. When the label on each one is unique (use different colours of ink, too, in labelling them), it actually takes much less time to flip through your disks and find the right one. ('Oh, yeah, now I remember — my recipes are labelled with the pink label and black ink.')

Speaking of floppies, buying someone a box of floppies is an old, if somewhat pedestrian, standby. If you're going to cop out and do this, at least get something that's out of the ordinary. (I'm very leery, incidentally, about giving unbranded floppies. I know all the arguments about unbranded-vs-branded, but I still feel more comfortable knowing that my priceless data is on disks made by folks who are proud to put their own name on the label.)

Remember, too, that your computer can help you shop. In the US, there are more

and more ways to shop remotely, using your computer and modem. Look around and you'll undoubtedly find similar services in Australia as well.

Finally, here's a truly unique gift I heard about — Two years ago, my friend Jim got his kid a 300 baud modem for his computer. His son is very bright and soon got into hacking and phreaking (doing things of questionable legality with the phone).

Little did Jim realize the Pandora's box he was opening with the gift!

Jim has warned the kid repeatedly about the legal dangers of hacking, but to no avail. He also believes in letting kids make their own mistakes in growing up. What Jim did was to put a local lawyer on retainer, in the event the kid was busted. He let the kid know that he should call the lawyer if need be and instructed the lawyer that if the kid called from jail, he (the lawyer) should let the kid stew in jail for a while before bailing him out.

From Boston, where it's nice and cold right now—Merry Christmas!

News Bytes

- A head-to-head-to-head-to-head fight is shaping up among vendors of spreadsheets. Borland International recently announced a product called Quattro; Microsoft Corp. announced its entry, Excel; and Surpass Software announced Surpass. The new products all claim advances of various sorts over industry-standard, 1-2-3.
- 386 users, beware: some defective Intel 80386 chips that were not supposed to find their way into 32-bit machines are showing up in them anyway — and causing user systems to crash. The chips, clearly marked '16 bit software only' on their cases, apparently found their way into the gray market and thence to computer manufacturers. Good Intel 80386 chips are in short supply, and Intel has said it will not replace any faulty chips.
- As competition heats up, more and more laser printers are coming to market, with a consequent drop in price. Some laser printers have been advertised in American newspapers for under \$US1000, and sales of laser printers have begun to cut into some sales of dot matrix and daisy wheel printers.

Many are seeing AutoCAD in a whole new light.

AutoCAD Release 9.

The development continues.

AutoCAD is the undisputed world-wide standard in computer-aided design software for drawing and design.

Since its introduction in 1982, Autodesk, the developers of AutoCAD, through a constant program of development and reaction to customer input, have launched a number of enhanced versions on the market and established an inexpensive upgrade path for all AutoCAD users.

AutoCAD Release 9 is the latest result of that program - a product of innovative thinking, superior technology and foresight, offering more features and greater productivity than ever before.

Release 9 features include an advanced, programmable, user interface. AutoCAD was the first PC-based CAD program with a fully programmable drawing and editing environment. Now AutoCAD offers a new advanced

user interface with pull-down menus, icon menus and dialogue boxes which ease you into AutoCAD quickly and simply, guiding you through your design or drafting session with logically arranged command options. You can rename standard AutoCAD commands, create new commands, even streamline frequently used routines into a few keystrokes.

Ideal for networking environments, AutoCAD's new drawing file format allows easy exchange of drawings between computers running different operating systems. With other CAD programs you have to convert your drawing files to an intermediate format that both computers recognise. Release 9 allows the exchange of files without the middle step, reducing the risk of information loss during the conversion process.

AutoCAD's high-level programming language, AutoLISP has been even further enhanced and

20 new text styles give designers even greater flexibility.

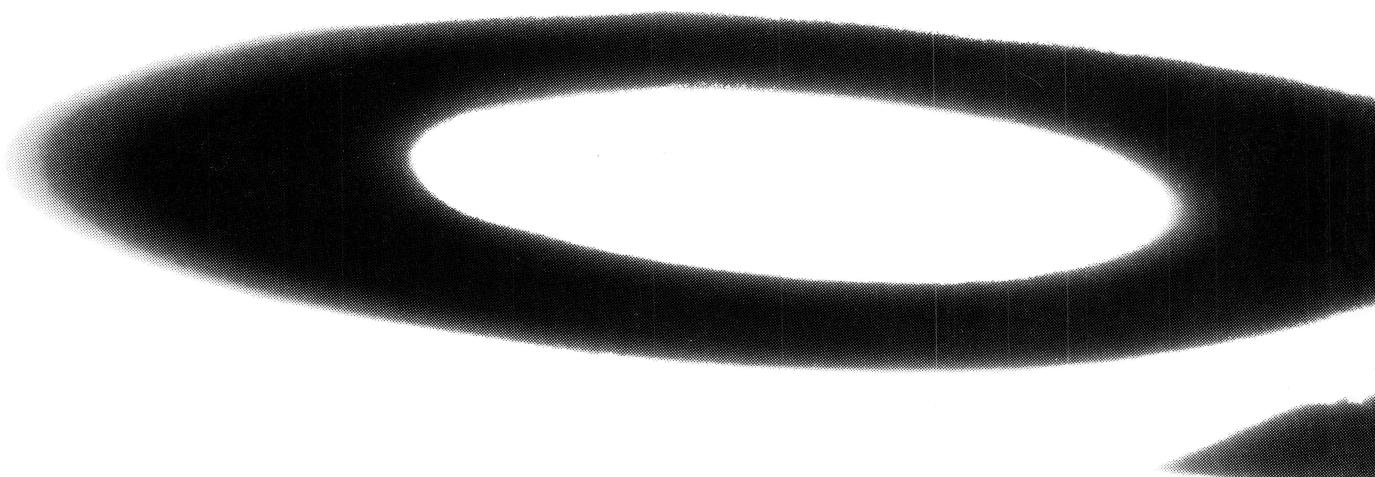
All this combined with standard features like 3D visualisation, on-line help, time accounting and automatic dimension updating, more than ever should make AutoCAD your first CAD software choice.

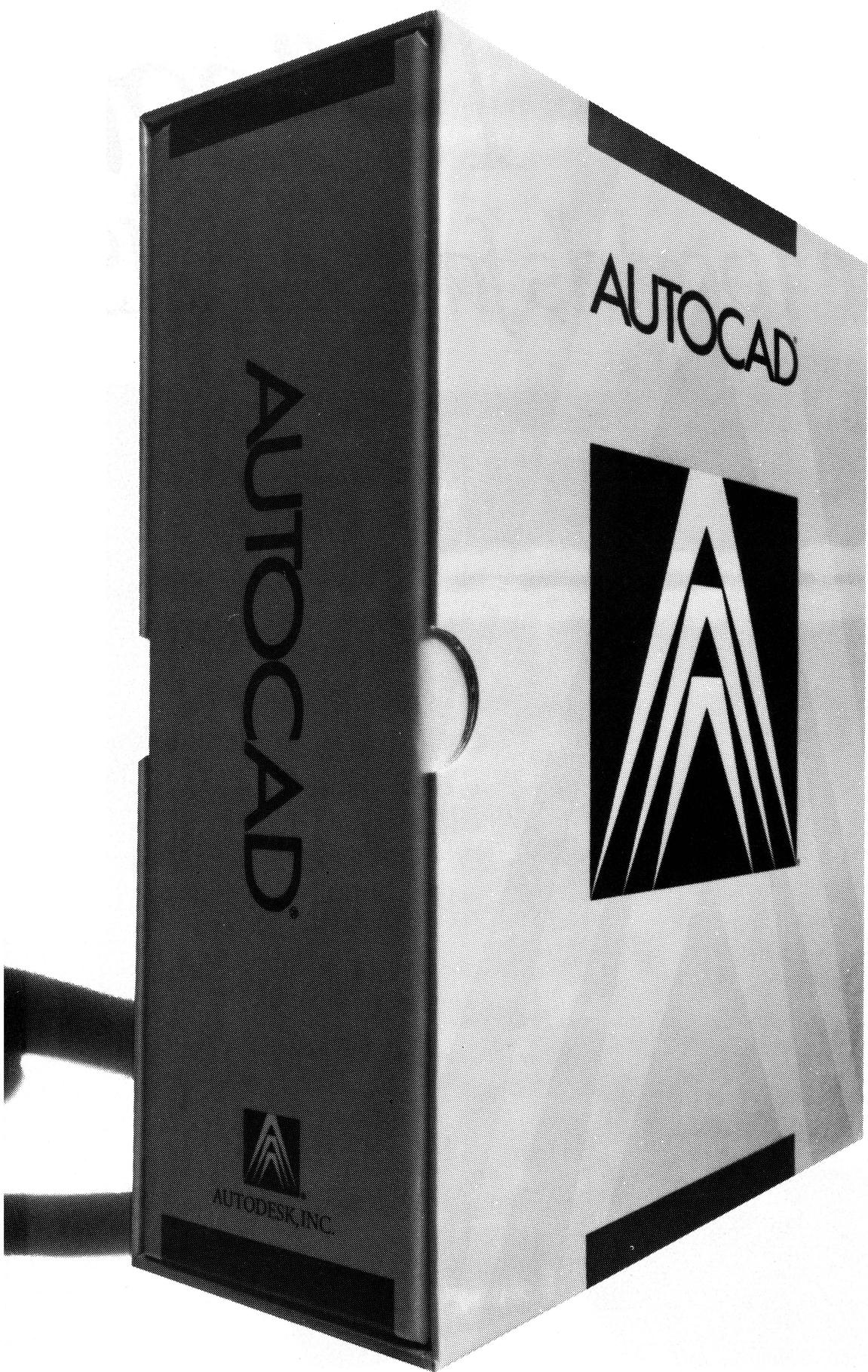
But there's more. Autodesk's Authorised Dealer Network (only they're authorised to provide future upgrades), Authorised Training Centres, user groups and a wide range of Australian developed add-ons, really put AutoCAD Release 9, in a whole new light.

See the light, contact Autodesk on (03)4299888 for the name of your nearest Authorised Dealer.



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3 The partners, reached through their personal contacts, will seek seed financing which will carry the company through 1988. South is developing a BBS-based management tool it said to be revolutionary. The system is also said by industry analysts to be a powerful

MegaScan

VOLUME 1 NEWS ISSUE 12

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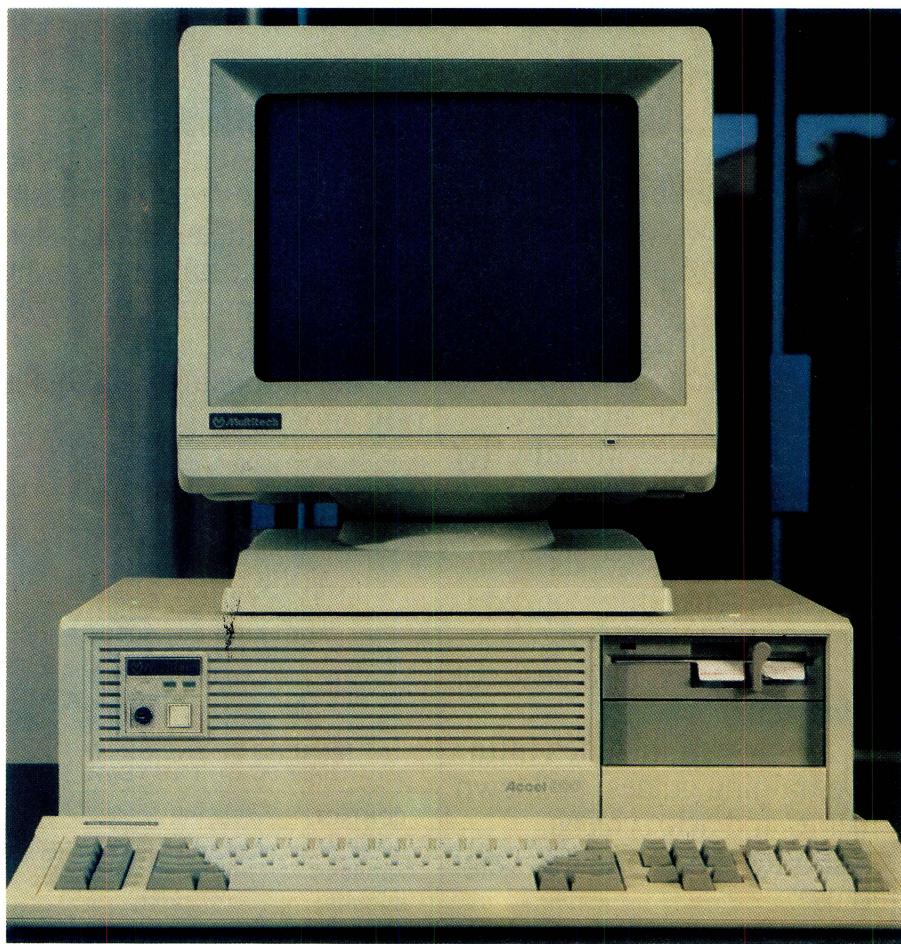
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All I want for Christmas is . . .

'Write me about 1200 words on what you would like for Christmas, . . .' Thus spake our esteemed editor, not realising that even without their normal journalistic verbosity, Ewart Stronach, John Hepworth and Tim Hartnell could make the list easily run to 2500 *wishes!*



Ewart Stronach

IN THE REALMS of fantasy, a Super Cray would be nice, not broiled or mornay, but just lying in the computer room, humming quietly. I couldn't use it of course, but just to see reactions when I said 'I'll run it through the Cray when I get home'. Closer to reality, but totally out of financial reach, the Compaq 386/20 would certainly speed things up a bit.

As a hobbyist, my computing wants (as distinct from needs) vary from those of a commercial user. We hobbyists desperately need the most esoteric Bits and Pieces. Many such articles would be warmly received for Christmas, and they needn't cost a bomb.

At the top of my 'realistic' hit list at the moment would undoubtably be an NEC Multisynch Monitor.

At the top of my 'realistic' hit list at the moment would undoubtably be an NEC Multisynch Monitor. These retail at about \$1800 from most major computer supply outlets and enable you to run high resolution graphics programs as well as enhancing the readability of much of your existing software. If you are thinking of buying one of these, it's fair to warn you that it also needs an add-on card for the computer which could set you back another six to seven hundred dollars. I would settle for less. There are dual scan monitors, complete with drive cards available for

under \$1000 for the lot which offer almost as much scope as the Multisynch, but nowhere as much flexibility.

A laser printer would be warmly received. So would an extended over-draught. These can cost upwards of \$10,000 but at the lower end are becoming available for about \$3500. Any printer would be a most acceptable gift for someone without one and prices start from \$380. A word of warning here; if you are contemplating buying such equipment as a surprise, seek the advise of a mutual friend with computer knowledge, as it's very easy to buy an expensive piece of equipment which is totally unsuitable.

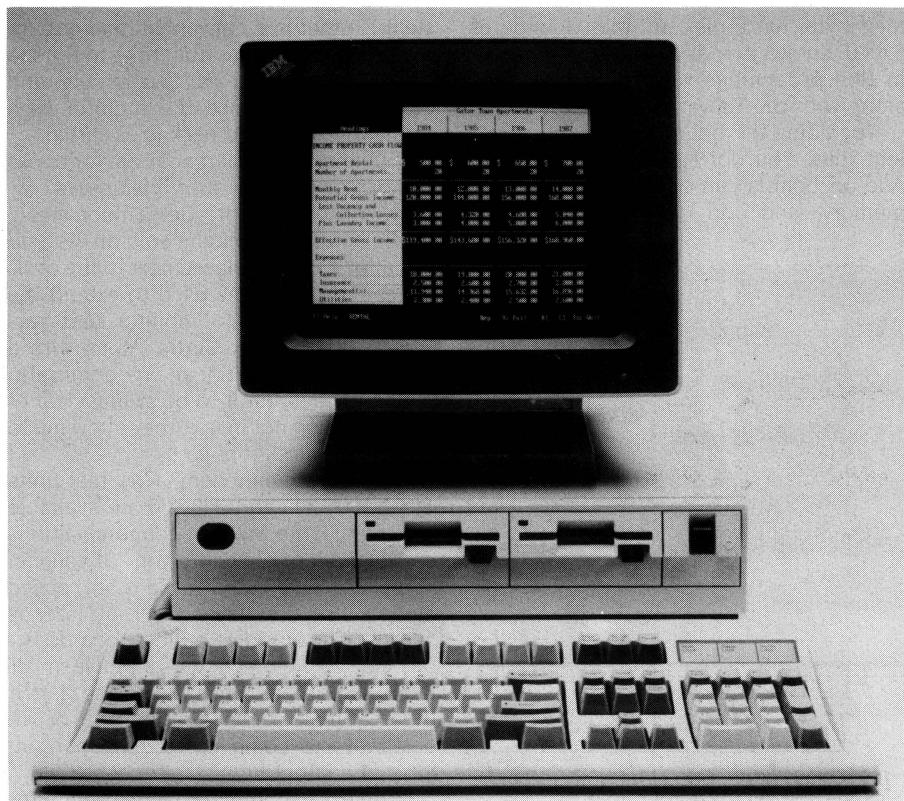
Mice are a nice little gift. Not the furry little pooh factories like the kids have, but little plastic ones which plug into the computer and make on-screen graphics programs useable. These come in various types. The original Microsoft Mouse comes complete with a software package and costs anything up to \$375, but watch out for special offers. There is a new mouse on the market called The Witty Mouse, which retails for \$95 but has no software with it.

I'd love a new modem. As technology marches on rapidly in the computer world, we struggle on with out-dated equipment, casting avaricious glances at later and better gear. A new modem with 1200/75 capability would put me and my computer in touch with the world via the Viatel network and should cost my lucky donor around \$375 for one with quite a few bells and whistles.

Don't buy me any software unless I've been wandering around for at least a month moaning about not being able to afford something quite specific. 'I'd love a database' is insufficient and a random purchase of a database is 99.9 per cent likely to be the wrong decision. 'A copy of dBASE from Wordtech Systems would be nice' is quite a sufficient hint for you to buy with confidence. You can be fairly safe with utility software.

A recent addition of a hard disk to a system demands a copy of one of the recognised 'back-up' utilities such as Fastback of DSBackup. Sidekick, a memory resident utility which offers a pop-up calculator, clock and calendar with an appointment register amongst other features is a safe bet, as is The Norton Commander, a program which offers instant display of disk contents plus the ability to move or modify files around the disks. Most of these utility style programs are reasonably priced and well received (*hint, hint*).

If your loved one is still living in the age



of monotonous monochrome, the cost of a colour card plus monitor is now within reasonable reach. Monitors can be bought for under \$400 and the CGA card for about \$130. Make sure that service is available as there are some unknown brands finding their way into the marketplace.

Additional disk drives for poverty pack computers are now quite affordable. A second floppy disk drive can be bought for under \$200 but known brands still cost about \$250. Hard disks are much more reasonable than they were this time last year. A 20 megabyte hard disk today costs about \$690 complete with controller card whereas this time last year you would have had to pay around \$1600. A hard disk would be a *most* acceptable addition to almost any system but even a second floppy drive for a basic computer would be gratefully received.

In the Socks and Underwear department of computing needs, one can never have too many floppy disks. Choose the brand already favoured if you must, but be aware that cheaper disks are not necessarily inferior and disks which are totally suitable can be bought for as low as \$10 a box. Disk storage boxes are another good stocking stuffer, as are disk drive cleaning kits, computer paper, spare printer ribbons and other consumable items.

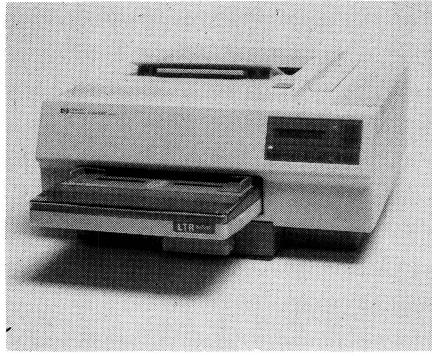
John Hepworth

What computing present would I like for Christmas? Oh, the list could truly be endless, but it really can be slimmed down very quickly. A new computer? What a grand idea. Most families with one computer soon find the pinch when a second person finds how much fun, and how useful, computing can be. Then starts the competition to use the only machine in the place. I would love to replace my aging PC with a 386, or a Personal System/2 model 50, 60 or 80.

But why replace? Keep the older machine, it will still run all those games, educational and business software quite well for many years, and all the competition at home for the one machine vanishes. Now there's an idea, I get a faster machine and the kids get the old one for themselves! Alternatively, I could keep my machine and buy the kids a home machine. Not one of those near toys that, with options can still cost \$1000 or more, but almost anything compatible with the classic IBM. The starting point for many clones with two floppy drives and a composite video monitor is, these days, just over \$1000 and with colour and a 20

megabyte hard disk in the vicinity of \$2000. Known brands like Commodore are in this price range with their PC clones along with the Taiwanese no-names.

Upgrading the old machine is an excellent idea. You don't have 640 kilobytes? Add-on boards can top up your existing memory; and add clock calendars and



Top of the list is an upgraded graphics card so I can read text properly and a new monitor.

extra serial and parallel ports. Hypertec has an excellent range which also includes a wide range of speed-up cards. There are also an infinite range of name brand and no-frills cards for any need. Adding a hard disk is the best single upgrade and one of 30 Mbyte or more would be nice. Replacing that mono or CGA monitor with an EGA card and monitor would also make a major improvement.

Without buying new machines, or upgrading, there are many cheap and simple things around. How about some of those flip top disk boxes which hold around 80 disks. They should be around \$25, or sometimes under \$20 on special. A quick way to organise one's disk collection and keep it under control. Anti-glare filters for the monitor and head cleaning kits never go astray.

There are many other little things which can make a difference. The right chair and desk will save many an hour of cramps and pain. The chair should be a five legged gas lift unit with simple and easy adjust-

ment, so that it is convenient and easy to change one's posture from time to time. A desk with room for PC and papers, and which does not raise the monitor high enough to get a bad neck is essential.

You have a desk, and no room for books and papers on it because it is always covered with equipment? Get a floor stand, which holds the system unit on its end and allows it to be placed next to the desk. Mine, and the cables used to extend the power and signal to monitor and keyboard, are made by Curtis. Along with a shelf for the monitor or an ergonomic arm to allow the monitor to be swung clear of the desk when not in use, they allow me to reclaim the desk top.

Do you have a modem? Now that units with 1200/1200 and 300/300 are available under \$400, the world of communications has opened for almost anyone. If you can afford it, 2400 baud or a high speed modem like the Netcomm TrailBlazer is heaven! The world of bulletin boards is a bit like a high-tech cross between CB radio and a party line, and taking part in the echomail conferences is one of the best ways to come up to speed on any facet of computing.

I don't play computer games very often and so won't try to recommend one for the PC, but the best computer game of all is programming. The best way to learn programming is by looking at and analysing the work of others. Borland, with their Turbo Tutor, Turbo Pascal Toolboxes and Turbo Basic Toolboxes give good training, good code to look at and excellent routines for inclusion in your own programs. Now you will need a compiler and Turbo Pascal, Turbo Basic or QuickBasic 3.0 are all economical and powerful.

Over the holidays, with time on your hands, try brushing up on the tricks and traps of DOS. A multitude of books is available, but the top two on my list of recommendations are from Microsoft Press and both are by Van Wolverton. *Running MS-DOS* and *Supercharging MS-DOS* are both easy to read and packed with information for novice and expert. In addition, almost any book written completely or partly by Peter Norton is worth checking out.

Probably the best computing present one could have would be two weeks away on vacation, with no computer in sight. Many of us enthusiasts end up using computers both at work and at home, and two weeks lying in the sun, swimming and generally recharging ones energy could be the best way to enhance computing in 1988.

Tim Hartnell

While Halley's Comet was heading down towards Melbourne's West Gate Bridge, I was engrossed in writing a couple of books for Dick Smith's VZ-300. After a few hours of staring at fuzzy letters and numbers on my TV screen — which closely resembled the 'dissolving aspro' look of the aforementioned comet — I thought I'd try switching my reliable old Sharp 'Shot Vision' telly to its monitor setting (designed for those rich types who can afford VCRs). What a revelation. The old fuzzy letters, which suggested I'd been playing with my keyboard for so long that I was going blind, stood out in sharp clarity.

If the thought of indulging in a new monitor and/or graphics card is out of the question, Bankcard-wise, you could invest in an anti-glare screen.

Whenever I used the VZ nowadays, I send the picture to the 'monitor' setting of my TV. And the VZ picture is better than the image I get on my IBM Personal Computer Color Display, the official IBM monitor. Even as I write this on my PC I am aware that the letters I can see are somewhat indistinct approximations to the writing I should be observing.

All this is leading up to what I want to give my PC (and me) for Christmas. Top of the list is an upgraded graphics card so I can read text properly and a new monitor. (By the way, the eagle-eyed among you will see that in this article, I've stuck to products available from Dick Smith and/or Tandy stores, as these stores are well distributed throughout Australia, and Dick Smith goodies are available anywhere by mail. I thought there was no point in whetting your appetite with hard-to-acquire Chrissy gifts.)

In the monitor field, there are a lot to choose from, all which fit well within the \$500 ceiling imposed by the editor on my

Christmas wish list. Dick Smith's Hercules-compatible monographics adaptor (which also includes a second parallel printer port) is \$299, and a suitable monitor (the Dick Smith 30 cm Green Screen job) is also \$299. For Multitech and other computers with a fitted CGA, such as the VZ300, System 80/TRS80 or Apple II series and compatibles, Mr Smith's emporium also has a 30 cm monitor for \$249, which is available in both ghastly green or sickly amber.

For \$499, I could splash out on Tandy's Dual-Display Graphics Adapter which includes a Hercules-compatible setting to display up to 640 x 200 in 16 colours. Tandy also has a nice monitor, which is slightly more expensive than the Electronic Dick's. This is the VM-2 Monochrome Monitor, which comes with a 30cm green phosphor screen and a non-glare finish. Just outside the price range, if I'd wanted colour, is Tandy's CM-5 RGB colour monitor, with a 33cm screen — ideal for 80 x 25 text and 320 x 200 graphics, for \$599, while Mr Smith's 30 cm RGB colour monitor is \$949.

The 'non-glare finish' mentioned above on the Tandy VM-2 is a real blessing. On the standard IBM monitor I've got, the screen has been polished so it resembles a mirror. Nothing is more distracting than trying to type while watching a reflection of yourself typing (especially when you look like I do). If the thought of indulging in a new monitor and/or graphics card is out of the question, Bankcard-wise, you could invest in an anti-glare screen.

I bought mine when I was in the UK, and it glories in the name of a 'Polaroid CP-50 contrast enhancement filter'. It cost, I seem to recall, around \$70 a couple of years ago. Fortunately, if you want to reduce the reflections and glare from your own screen, and thus improve the visual output of your computer, in Australia Tandy have an anti-glare screen, which both reduces reflection and enhances contrast on a colour monitor, for \$49.95. The improvement such a screen can make is extraordinary. Simply as a way of enhancing your pleasure at working with your computer, and in reducing the strain, few products can beat an anti-glare screen.

Now, once we've settled on the graphics card, monitor and (possibly) anti-glare filter, we need to sit our monitor on something. In the best traditions of do-it-yourself high tech, my IBM monitor is slanted up to the correct angle with a finely finished old one and a half inch by one foot lump of wood. You, of course, are entitled

to more than this. Throwing the wood on the barbecue, you head for DSE and then decide if you want to be mean, not so mean, or foolishly profligate.

In the mean area, the deftly-named Budget Swivel Base is available for \$24.95. This allows a full 360 degrees rotation, and 25 degrees vertical adjustment. A trifling \$15 more and you could be the proud owner of the Deluxe Swivel Base, which has the added delight of a 'knurled knob on front for locking or freeing the monitor'. If you need to turn your monitor frequently, for example to allow others to see the screen, this is the one to choose. As I have often wished for a knurled knob, I think I would go for the Deluxe version.

After a smallish win on Tattslotto, I

which people and living plays second-fiddle to the demands of computers, but few people are willing to turn over all their living space to these silicon creatures. A Student's Computer Desk, to give your machine an established home, rather than the temporary resting place on the dining room table, is available from Tandy for \$199.95, and measures 90 x 93 x 60 cm.

Those of the Tattslotto breed can splash out on a Deluxe Modular Workstation from Tandy, which consists of a system desk for \$459.95, a storage hutch for a trifling \$199.95, a Corner Section (now there's an imaginative name!) for \$119.95 and a printer stand, with bottom-feed paper slot, fold-out paper catch and paper storage shelf, for \$349.95. (Despite the



could invest in the Gas Lift Monitor Arm, an ergonomically-designed gas-lift arm which allows you to place the monitor exactly where you want it. To prove there is something up your sleeve, and to add to the neatness of your computer room, the monitor connection cables can be neatly concealed, inside the arm.

Midway between the mean and not-so-mean is Tandy's grandly-named, Universal Monitor Pedestal (which looks remarkably like Dick's non-knurled knob model), which features an adjustable rotating platform and the ability to tilt the monitor to the optimum viewing angle. A slightly more robust device, designed to fit under and then bend around the back so it comes over the back part of the keyboard unit of a computer, is Tandy's Monitor Platform for \$99.95. This sturdy platform has a wooden top and metal legs.

The Hartnell menagerie of computers rests on a complex structure built from five wooden picnic tables from Myers. This is OK if you have a house like mine in

word 'deluxe' in the product name, there seems to be a noticeable shortage of knurled knobs with this combination, but I guess you can't have everything.)

The potential goodies go on and on. For printed output, Tandy has an 80 characters per second (cps) printer, the PC-compatible DMP-106, able to produce bit-mapped graphics, and using a 8x9 matrix, for \$399.95. Tricky Dicky has a significantly faster printer; its 135 characters per second (draft mode), or 40 cps (near letter quality) dot matrix print job for \$499.00. This works on a 9x9 matrix for letters. For paper, Dick Smith seems to be cheaper, flogging off a box of 2,500 sheets of fan-fold paper for \$71.45, while Tandy's paper is \$39.95 for 1000 sheets.

I think that's about it. I've now invested in a new graphics card and monitor, a deluxe support for my new monitor, some classy furniture to house my computer, a new printer and enough paper to write 'Tim Hartnell's War and Peace on your VZ-300'. All I need now is a knurled knob. □

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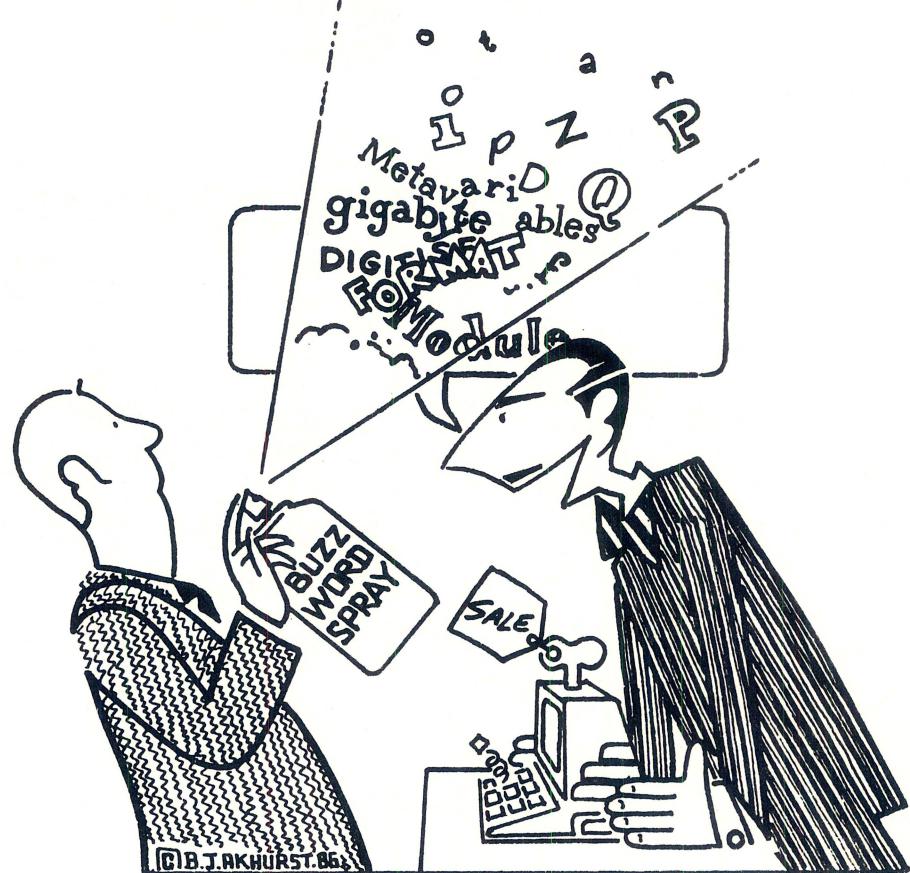
Buying a computer?

This is the time of the year that many of us consider buying a computer for home use. But — what to buy? Gregg Faulkner suggests some hard hitting questions to help answer that quandary.

SO, YOU ARE seriously considering the purchase of a home computer. You want a machine which the kids can use to develop their computer awareness and you can use for business (and pleasure); plus, a machine which is not going to quickly become obsolete; plus, a machine for which there is a large range of quality software, and (preferably) one produced and supported by a major manufacturer.

If you've given the purchase that much thought already, you've considered most of the major pitfalls which surround such a purchase. Now let's consider some of the not so obvious hazards. First, what sort of use is the family going to make of the machine? Is one or more family member musically inclined, or inclined toward painting/drawing or animation, or producing technical or architectural drawings, or a club or organisation newsletter editor or membership secretary, or a collector and cataloguer, or even interested in computer games and simulations?

The answers to these questions will lead you toward an idea of the types of software you are most likely to require and, in the end, to the types of hardware options you are likely to need. For someone seriously interested in computer graphics, painting and animation a machine with high resolution graphics capability and a large colour range is vital.



Similarly, for a music enthusiast the sound production capability and the ability to connect easily to a stereo system are important considerations. A collector is likely to want a database system with substantial memory capacity.

If you are seriously considering bringing work home with you and using the machine as an extension of your business world, then you must consider compatibility with your business machine. My advice on this point is that you should be wary of choosing a 'business' machine for home purposes as, very often, software to suit 'business' machines is sold at 'business' prices. Many PCs which are sold on their 'business' image are inferior to other PCs in their graphics and sound capabilities unless you add a never-ending succession of accessories to the basic machine.

Don't let yourself be carried away with advertising or gimmickry. The best place to assess the suitability of a particular machine for your needs is not in the dealer's showroom, but in the home of a friend or contact who owns and uses the type of machine you may be considering buying. One of the best sources of information can be a user group — most groups are happy to accommodate potential new users and only too willing to answer questions and make recommendations about both hardware and software.

In any event, most people are only too

willing to tell you the advantages and, even more importantly, the shortcomings of their machine. Take the opportunity to have a play with the computer. Gauge the feel of the keyboard. Is it on an extending coiled cable? Does it have a numeric keypad? Check the display monitor. Is the image crisp and easy to read? Can the default colours be changed to suit your taste? Load some software. Is the method of control simple and convenient? How fast and easy is the loading process?

Talk to the owner about the range, quality and price of the available software. Has the machine proven reliable? If maintenance was required, would service be readily available? Have a look at some of the manuals for the machine. Are they understandable, or do they require a lot of technical knowledge?

Check whether the machine can be easily connected to other home equipment such as a video-recorder and amplifier if you think you might have use for those. You may later want to produce animation or titles for your videotapes, or play music generated on the computer.

How long has the person owned the computer? How much did it cost? What peripherals does the owner have attached and (the answer might be quite different) what do they recommend? And, where did they buy it and for how much? There are still, unfortunately, a number of fly-by-

night operators selling computers and they will assure you of great after sales service — if you can find them — or they field the questions on service with something like: 'We only sell them, it'll never need to be fixed, but if it does, just take it to any computer store.'

All those questions may appear to be overkill but let's be realistic about a few things. By the time you have completed your purchase of a PC, printer, some disks, some commercial software, printer paper, and so on, you are going to spend somewhere between two and ten thousand dollars — that's a lot of money to spend and then still not be happy. The time to think about the purchase and to consider if a particular computer and collection of add-ons is what you *need* (as opposed to *want*) is before you buy it, not after.

There are also several department stores which are selling computers the same way they sell handkerchiefs. The sales assistant frequently wouldn't know a disk drive from a mild hernia, and he's not going to risk either by going out of his way to be helpful. Next week he's being promoted to selling socks so why should he care?

For my money there's only one place to buy a PC, and that's from a well established computer specialist retailer. If the guy's been in business for a few years, and especially if his business is expanding, you can bet your wallet that he's doing the right thing by his customers. The grapevine moves too quickly for rip-off merchants to last long in this business, and the genuine retailers count on follow up business to stay in the black.

Now, as to individual machines, what do I recommend? Well, let me put it this way. There are a number of excellent PCs on the market. Notable among them are the Commodore Amiga, Apple Macintosh, the Atari ST series and offerings from NEC, Sanyo, Tandy, Microbee, Amstrad and others. There are also countless clones of IBM which are so busy trying to copy Big Blue that they haven't realised that computers have progressed ten years in the meantime.

My recommendation for the best all-round value for money in home computers to suit a wide variety of requirements... I'm not going to suggest any one in particular. Do let me add though that this article is being written on my Amiga 1000 and printed on an Epson EX-1000 with colour option... 'nuff said! But that was my choice, you'll have to make up your own mind.

Shopping List for an IBM PC compatible

Software

(You should consider what type of software you need first.)

- MS-DOS (may be called PC-DOS) Version 2.11 or higher — preferably Version 3.1 or 3.2. This is the operating system for the computer, and it may or may not be included in the basic price of the computer. Make sure you know.
- See any applications software you want to use — such as spreadsheets, word processors, graphics packages, and so on — running on your prospective computer, monitor and printer. Be especially careful if you're buying software that is copy protected — the software itself may be compatible with your system, but the copy-protection scheme may not. It's a good idea if you can buy both software and hardware from the same distributor; otherwise, try to test a copy of the software you want on the dealer's machine.
- Software manuals. If you buy DOS or any other software, you should get a manual to accompany it. If you don't, the origins of your software may be suspect.

Hardware

□ Basic system unit with one 360 kilobyte disk drive, and minimum of 512 Kbytes of RAM.

□ Monochrome monitor. You'll also need a video adaptor card for connecting the monitor (although a few machines already have this built onto the main system board, with a port for connecting your monitor cable). Don't get a CGA (Colour Graphics Adaptor) monitor and card — the resolution is abysmal. Monochrome monitors give better resolution for a lower price. If you need colour, then pay the extra and get an EGA card and monitor. Your eyes will love you for it.

□ Keyboard — preferably 'AT style' with lights indicating when the CAPS LOCK and NUM LOCK keys are in action. If you are going to use a program such as Wordstar, which uses a lot of control key combinations, make sure the Ctrl key is on the same line as the ASDFGHJKL row of the keyboard. Otherwise, using commands such as ^QS become a digital feat.

□ Serial and parallel ports (for connecting a printer, modem or other devices). You'll probably want one of each, and they'll either be built into the basic unit, or you may have to get a plug-in card which will provide them (a so-called I/O card).

□ A printer. Depending on your needs, you can get a slow daisy wheel which will produce typewriter-quality output, or a fast dot matrix, with lesser quality output. A dot matrix should print at 100

characters per second (cps) or faster, and will possibly have two speeds — a fast draft mode (perhaps about 180 cps), and a slower NLQ (near letter quality) mode. Get a sample of the output to take home.

- Tractor feed mechanism for the printer, which lets you use continuous paper. Many dot-matrix printers already have a tractor feed built-in. If you need to produce many letters, envelopes, or other single-sheet documents, you may want to invest in a cut-sheet feeder. However, you can get high-quality tractor-feed paper with clean edges which makes a sheet-feeder unnecessary in most cases.
- Cables. You need a printer cable to connect your printer to the computer. If you have a serial printer (attaches to the computer through the serial — or RS-232 — port) you'll need a serial cable; if you have a parallel printer and port (may be called Centronics parallel) you'll need a parallel cable. You should also check you're getting the appropriate cables for your monitor and computer itself.

□ User guide and hardware manuals. You should get a guide to tell you how to get your computer up and running, and you should also get manuals for your printer, monitor, any add-on cards, and any other peripherals.

Extras and On-goings

□ Box of 10 double-sided, double-density 13 cm (5 1/4 inch) floppy disks. If your machine has a hard disk you'll probably find you need more. A 20 Mbyte hard disk full of programs and data requires almost 55 disks to backup! It may take a while to build up to this sort of volume, but believe me, you will. You may then find a floppy-disk box will save your sanity when trying to keep your floppies in order.

□ Box of continuous printer paper. You can get various qualities, from crummy stuff to good bond paper which has a clean edge when you strip off the tractor feed holes.

□ Printer ribbons. If you can, find out the printing life of your particular printer's ribbons, and the replacement costs. Some ribbons cost as much as \$70 to replace, while others sell for under \$10.

□ Warranty. You should be able to get a 12 months warranty on all your equipment — computer, monitor and printer. Check what it covers; whether you have to return the computer to them for service or whether an on-site service is included or available; and how long the average problem takes to fix (some companies take out the faulty board and whack in a new one on the spot, so you can get back to computing without delay).

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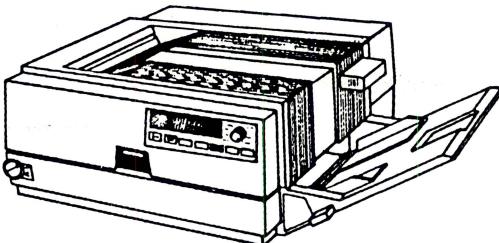
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WISHBRINGER

NO OTHER software house in the world enjoys a reputation for such quality in their adventure games as Infocom. Its products seem to get better and better with each new release. Those who have followed on from the famous Zork trilogy will know precisely what I mean.

While not a complete games buff, the urge to go adventuring is too ingrained from my childhood to forget, and too overwhelming to ignore. There is something irresistible, for instance, in battling a fire breathing dragon or wandering cautiously through the secret corridors of a haunted mansion. And there's something timeless in rescuing a pretty maiden from dungeons dank and dark. All this in the comfort (and safety) of home.

Typically, there are many puzzles along the adventure way; ranging from the simple and obvious to the clever and ingenious. How do I open the box? Where is the key to the door? Why am I playing this game? This is the stuff of adventuring. From a choice selection of Infocom games, there is one called Wishbringer in which you are required to play the part of a mail clerk in the sleepy town of Festeron.

Your immediate task is to cross the bridge on the far side of town and deliver a letter to the old lady at Ye Olde Magick Shoppe. Your arrival there is just the beginning of what is to be a harrowing ordeal — The letter is ransom note from a mysterious figure called the Evil One. She has kidnapped Chaos, the old lady's cat, and demands Wishbringer, the Magick Stone of Dreams, in payment for its safe

Product Details

Product: Wishbringer

From: Infocom, Cambridge, Massachusetts USA

Distributor: Imagineering
(02) 697 8666

Review Copy From: High Technology Software, 290 Bay St, Brighton 3186 Vic.;(03) 596 6211

Price: \$40 for Amiga, C64 and IBM; \$79 for Apple II; \$20 for Amstrad; \$19 for Hint Booklet; (*All prices taxed*)

return. The old lady, distressed and anxious, pledges to place the stone in your hands if you rescue the cat. Here, then, is your quest.

Before leaving the shop, you are given a small gift which will lead to Wishbringer and its seven wishes: rain, advice, flight, darkness, foresight, luck and freedom. It is now up to you to prove your worth for you have become embroiled in a spectacular bid for the power and things will never be the same. Try returning across the bridge; if you do, your delight will suddenly turn to exasperation in a town you no longer recognize.

In the distance there is an evil-looking tower where the post office had stood, but before you have time to ponder its shadows, the sound of a heavy footsteps echo the barren streets. Enter the Boot Brigade, a squad of giant army boots whose sole purpose in life (if you'll forgive the pun — and another one just coming up) is to throw you in the slammer. They will harass you constantly on your journey, so you'll have to keep one step ahead of them after your first stint in jail.

If you really try, you can make friends with a pelican, a church mouse, a host of sea horses and, of course, the obligatory princess. If you think a princess out of place in this fair land, then I should inform you that her name is Tasmania, a duck billed platypus!

These creatures will either befriend or ignore you, help or hinder, as you wend your way through a fascinating sequence of events. Instinct assures you that each will bring you closer and closer to an awesome evil. But not without first having some fun. Take, for instance, the mailbox situated west of the house. No ordinary mailbox; mind you, but that now famous mail-box from Zork I — just when you thought it was safe to re-boot the computer! Remove the leaflet from the box, stand aside and watch as he plucks himself from the ground to cavort in the field like a spring rabbit.

Then, further into the game, you will actually meet a baby grue. Yes, that dreaded, faceless species of goodness-knows-what which scours the darkness in search of

careless adventurers. As we dauntless few have come to know, grues have a Dracula-like fear of light in any form. Consider then the grue's refrigerator. What do you think happens when you open the door? You've guessed it — the courtesy lamp is instantly extinguished. Nice touch Infocom!

As the story unfolds, the nightmare which has occurred in your beloved town is a measure of the evil you must face. That yappy French poodle has turned into an enormous hellhound, the goldfish in the fountain, a fierce piranha. Miss Voss, the chirpy librarian, is now in league with the enemy, as is the gravedigger from the spooky cemetery. The buildings are dirty and dilapidated, cold and rat-infested.



The knowledge that the stone is at hand is a comforting thought, but your courage and wisdom will be tested severely when you confront the Evil One. Here lies the destiny of Wishbringer and with it a choice to be made in an agony of doubt. You will do well to pause awhile in thought, for that choice will end your quest, one way or another. It is interesting to note that while it may be tempting to use the stone on your journey, its powers need not be invoked for any of the puzzles. As Brian Moriarty, the game's creator, stated in an interview in *Amiga World*, 'The puzzles are highly interconnected. Once you start wishing your problems away, it's very hard to continue playing without relying more and more on the magic stone. The importance of idle wishing — that's the moral of Wishbringer.'

I couldn't agree more. The story has a rare 'completeness' about it that is wholly satisfying. It is written in a pleasing style, clear and lucid, with detailed descriptions of characters and places. The innuendo and humor scattered throughout, together with an enchanting storyline, makes Wishbringer a beautifully crafted work. Thank you Mr Moriarty. □

Reviewed by Glen Hampson.

Of Mice And Men

The Logitech Logimouse C7

THE LOGITECH Logimouse C7 is a 3 button mouse which has the necessary electronics onboard to enable it to work directly from an RS232C serial port. Due to this it has no plug-in card, therefore it does not use up an expansion slot and can be used on any IBM PC or compatible which has such a port. Although it was specifically designed for the IBM PC and compatibles, it should be possible to write a mouse driver to operate it from any other computer that has an RS232C port.

The C7 comes with an easy to read manual and two 5¹/₄ inch disks containing the mouse software. The first disk has the mouse drivers, a driver for Microsoft Windows, a mouse tracking program and various BAT files to help with installation. There is also a document file with update information. The second disk is the Plus Package with software for Popup Menus, some pre-defined menus and menu DEF (definition) files for popular programs, the Click program that automatically loads the appropriate menu for an application and sets the mouse parameters, a point shell for Lotus 1-2-3 and a text editor, Point, which uses the mouse. The disks are not protected and backing up is encouraged.

More than a Mouse

The mouse is available with either standard DB25 connector or the D9 connector which is appearing on many computers nowadays, especially portables. It fits snugly into the palm of the hand, although after using an Apple mouse it took a little getting used to; because it is a 3 button mouse it is held differently with the thumb and little finger

The man, Bill Hughes, reviews the mouse, Logimouse C7, which has the electronics to enable it to work from an RS232C serial port.

along either side and the 3 middle fingers resting on the buttons, whereas an Apple mouse is held differently.

My first reaction was 'Why would anyone want 3 buttons for when I would be quite sufficient?'. What I failed to realise was that the buttons can be programmed to perform other functions, not just select options from a menu. In this way, 3 buttons come in very handy. With 3 buttons there are 7 possible functions available; 1 for each of the buttons makes 3 plus 4 for the chords (a chord is any two or more buttons pressed simultaneously).

The Logimouse C7 can be configured to imitate most other brands of mice. Therefore, most software packages that support a mouse can use the Logimouse. If there is no Logimouse driver in the software then simply choose another mouse driver and configure the Logimouse to imitate that mouse.

I did find a bug in the Logimouse driver Version 3.10. It appears not to allow you to change protocol, although the manual says it does. If you have the mouse driver disk in the currently logged drive and type

MOUSE 1200 5b 150 and press return, then the mouse.com file should load and set up the mouse for 1200 baud operation with protocol 5 bit packed binary and continuous report rate. If you type MOUSE ? and press return to verify the setting you will see that the protocol has remained set at MMSeries. It is not known whether the protocol is not actually changed or MOUSE fails to report the change. The strange thing is that the earlier Version 3.02 driver does not suffer from this problem. If you use this version then the protocol will be shown to have changed and be set correctly. I would be interested to hear what Logitech has to say about this one.

One other problem I struck was that I could not get the Logimouse to work properly with Autocad Version 2.00. It simply would not allow the cross hairs to move fully to the left of the drawing screen

The Logimouse C7 can be configured to imitate most other brands of mice.

or completely to the bottom. Also the mouse would not make selections from the bottom of the menu to the right of the drawing screen. I am told that Autocad Version 2.18 works okay with the mouse. Although this review was done using a Pan-Asia IBM PC clone with a hard disk, there is no way of my knowing if the BIOSs are different on my machine. The mouse works partially with Autocad and works

perfectly with all other software tried. It would appear to be a problem with Autocad. There is no driver in Autocad specifically for the Logimouse C7, although there is a driver for an earlier model of the Logimouse. All attempts to use another driver and make the Logimouse C7 imitate the particular mouse failed.

Other Application Software

All other application software that I tried worked well. There is a menu file on the Plus disk for XTREE which is great with a mouse. The Lotus 1-2-3 point shell worked well, although I don't know enough about Lotus 1-2-3 to give a comprehensive judgement. Some of the given menu files caused problems if one forgets to use the Menu Off option before proceeding to a program that does not have a menu file in Click. For instance, some of the menu files use the cursor movement keys for the mouse movement and if one goes straight into Wordstar then strange things happen if the mouse is moved with the opening menu up.

One way out of this is to use a BAT file that will automatically turn the mouse menu off for you when you end a program. But if you do this then the popup menu facility will be disabled until you use the Menu On option. The Turbo Pascal menu file suffered similarly if the mouse was moved when not in the editing mode. I found that many of these problems can be eliminated if you use a text editor to make changes to the definition file and then use NEWMENU.EXE to make the changes valid in the menu file.

Windows can be opened and closed easily with the mouse.

The default settings for the mouse with the Logitech drivers installed are: 2400 baud, continuous report rate, with 3 buttons and MMSeries protocol. Without the drivers installed the default settings are that of a PC Mouse: 1200 baud and continuous report rate with 5 byte packed binary protocol. The Logimouse can be configured to use the middle button as if the 2 buttons were pressed on a 2 button

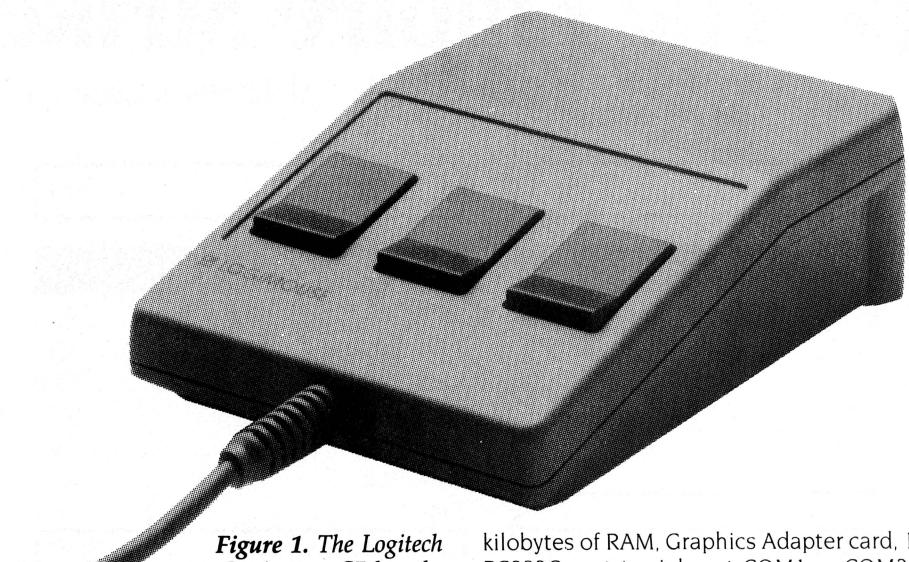


Figure 1. The Logitech Logimouse C7 has the necessary electronics to work from an RS232C serial port; it does not use up an expansion slot and can be used on any IBM PC compatible with a serial port.

mouse. This is useful if you must imitate such a mouse. Alternatively, 2 button mice can use their 2 button chord to simulate a selection normally made from the Logimouse's middle button.

Point Editor

The manual has a comprehensive tutorial section on the use of Click and Menu. There is also a section describing the use of the Lotus point shell. Almost half of the manual is devoted to the Logitech Point Editor. This text editor would require an article by itself to do it justice. It works best with a mouse but does not need it to function.

A very nice feature is the elevator at the left side of the window that gives one an idea of the size of the file and current position. Windows can be opened and closed easily with the mouse. It is a simple matter to copy between windows. There is a scrap buffer to allow you to get back deleted text if you made a mistake and didn't mean to delete it afterall. Popup menus are available and commands can be typed directly on the keyboard. Windows can be changed in size and moved around the screen. In fact, it seems to have all the goodies you ever wanted and it is easy to use.

The system requirements for the Logimouse C7 are IBM PC, XT, AT or any 100 percent IBM compatible with at least 256

kilobytes of RAM, Graphics Adapter card, 1 RS232C port (serial port COM1 or COM2) and 2 floppy disk drives or 1 floppy disk drive and 1 hard disk. The operating system must be PC DOS or MS DOS, Version 2.0 or later. My mouse is in use on a Toshiba T1100 portable with one 720 Kbyte floppy disk drive and one RS232C port. The Toshiba does have two logical disk drives, though, and 256 Kbyte of RAM. One of my friends also has a Logimouse C7. He is using it on a Bondwell portable. We found that the problems mentioned earlier with the Logimouse also occur on his system.

If you intend getting the Logimouse C7 then I strongly recommend that you get the Plus package. It is only \$20 extra but the extra benefits of the package are well worth it. The standard package does not have the popup menus, the Lotus point shell and the Point text editor. You are missing out on a lot without these. I can thoroughly recommend the Logimouse C7. In my opinion it was well worth the money I paid for it. □

Product Details

Product: Logitech Logimouse C7

From: Logitech, California, USA

Distributor: Dataflow, 134 Barcom Ave, Rushcutters Bay, 2011 NSW

Phone: (02) 331 6153

Review copy from: GCS Pty Ltd, 81 Hanson Rd, Gladstone, 4680 Qld

Phone: (079) 7250

Price: \$234 (taxed) including Click and Point Editor software from Logitech

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A Portable Modem!

The NetComm PocketModem 123

With so many of us having given up smoking, we've got to find a new use for shirt pockets — now you can carry a modem there on your travels. Gareth Powell tells the tale . . .

FIRST I should set the scene. Several times a year Matt Whelan and I fly overseas to deliver seminars covering sundry subjects. While I am doing this I need to keep filing stories to the Sydney Morning Herald where I am computing editor. This is not easy.

As we fly around the world, Matt and I apportion our tasks equally — I write, he sleeps. Typically, I can get about 8000 words written into my battery powered NEC 8201 portable between Singapore and London. This time I flew straight through from Sydney and arrived in London with 16,482 words imbedded in the memory cells of my computer.

The trick then is to transfer this copy via the telephone system to Sydney where it can be placed in the computer of the Herald or wherever. The newspaper issues travelling reporters with an acoustic coupler with which we can transmit our copy.

But — this restricts transmission to 300 bits a second. 300 bits is 50 letters, which is, roughly, 8 words. Therefore you are looking at a transmission time for 16,482 words of over half an hour which at international telephone rates is serious money.

Another problem is that the rubber cups on the acoustic coupler are designed for Australian telephones. The Europeans have different shaped telephones to us

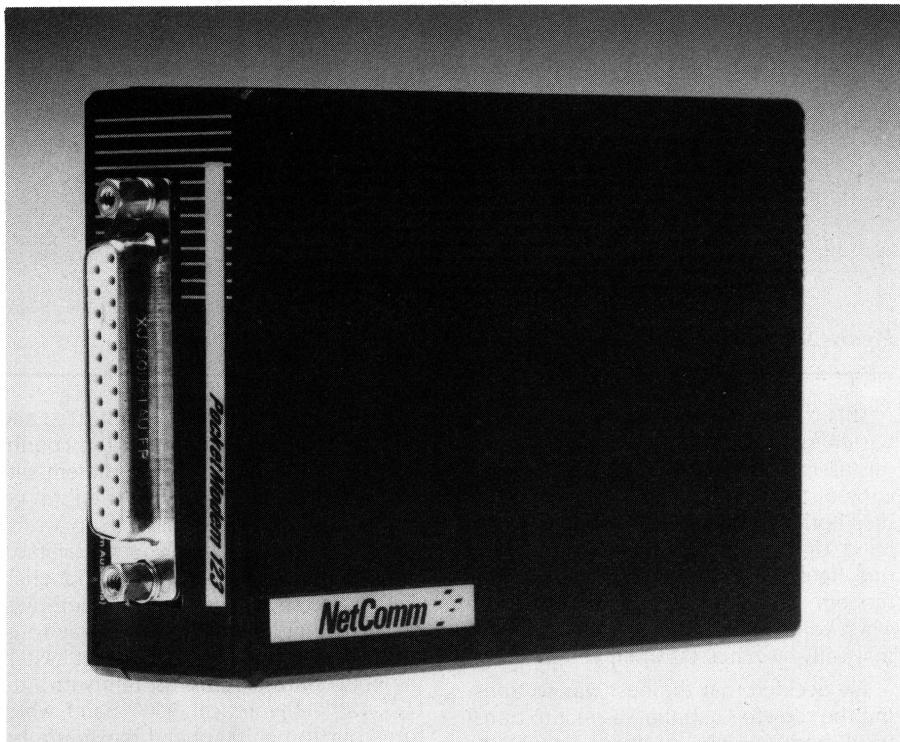


Figure 1. The battery powered PocketModem 123 isn't much larger than a packet of cigarettes and weighs almost nothing. In operation, it is almost an exact copy of the full-sized Netcomm 123. Plus, it automatically switches on when you start communicating and automatically switches off when you stop.

(possibly because they have different shaped ears). This means that nothing quite fits and desperate lady journalists have been known to wrap their tights around the telephone to try and smother extraneous noises which affect transmission.

Plainly this is not the way to go. So this time I unhooked my Netcomm 123 modem from my computer at home and brought it, complete with transformer, to England. I also brought a power board because the plugs in the UK are pom shaped.

I need not have bothered.

Four days after I arrived, in the middle of a desktop publishing seminar, Matt produced from his pocket a strange device looking like an oversize cigarette packet made in black plastic. He explained that this was a *truly* portable modem which NetComm had lent him to test. (Why NetComm should chose to lend this to Matt and not to me is not easy to understand. Matt not telling me before we left is not easy to forgive. Harsh words were spoken. A full and frank exchange of views was made.)

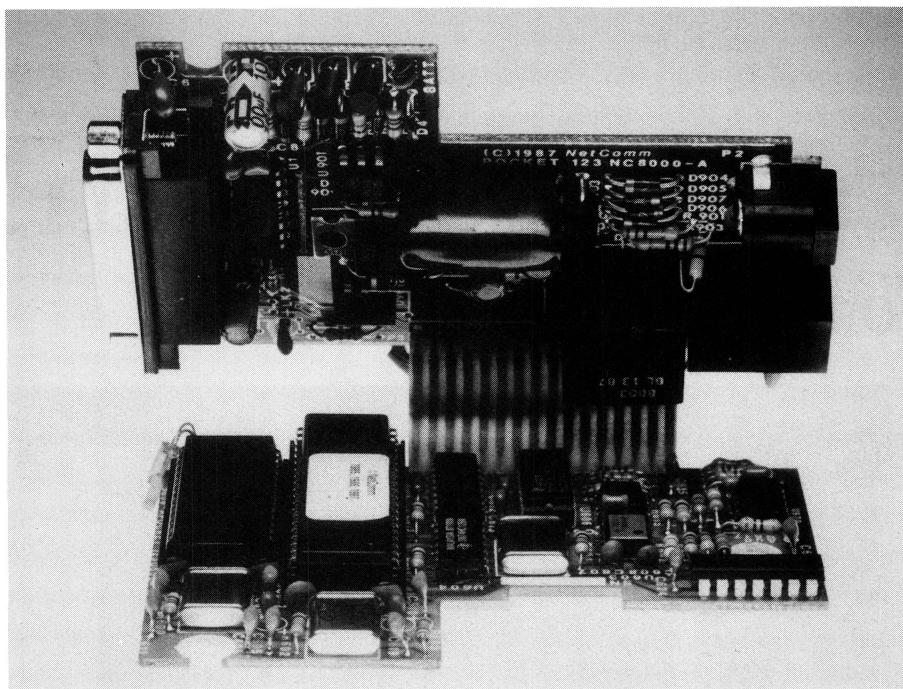


Figure 2. There's even a battery charger in there!

This totally transportable modem is battery powered and weighs almost nothing. It is, in operation, almost an exact copy of the Netcomm 123 in that it handles both Bell and CCITT at 300 and 1200 baud. Unlike its bigger brother, it only has one light to show you it is active. This modem is automatically switched on when you start communicating, and automatically switches off when you stop.

We decided that the best way to transmit the copy to Australia was first to transfer it from my NEC portable into Matt's new 80386-powered President portable.

This was very simple to do. Both of us carry break out boxes. Setting up a null modem — pins 1 to 1, 2 to 3, 3 to 2, 7 to 7 — took but a moment and than all of the copy was dumped from my computer into that of Matt Whelan.

Matt tried hooking up direct to Australia using Telix — for both of us the communications program flavour of the month — direct at 1200 baud. It was then our problems started.

Whatever we care to say about Australian Telecom — and in my time I have been harsh, abrasive and truthful — they leave the British version for dead. In the UK, directory enquiries is an unlisted number and the noise on the lines is quite shattering. (Lest you think that this was just our experience through a hotel tele-

phone system, know that I contacted several other journalists around the country and they all have the same problem with duff lines). Every time we tried to get through our screen would fill up with a load of gibberish. Not, you understand, the gibberish I write — different gibberish.

As we were not getting anywhere with direct dialling, plainly the only way to go was to hook in through the packet switching network which links Britain with Australia at a theoretical 9600 baud which turns out to be 2000 baud maximum because of transmission errors. (Again not just my opinion. One of the biggest users — SII Systems — has carried out a series of tests with these results.)

We dialled the number we had been given. Up on Matt's screen would come the magic phrase 1200 CONNECT. Then nothing. Not a sausage.

I managed to find the technical support number at British Telecom for packet switching networks. I asked for technical advice. The man at the other end plainly thought I was quite mad and seemed affronted that someone should ring up and ask questions. Nor was he sure of the answers. In the end he told us to try another number and set the software to transmit at 8 bits, no parity, 1 stop bit. Again nothing happened. Called technical support again. Went through the whole rigmarole and then, after half an hour of toing and

For any business person travelling with a computer, this modem is definitely the way to go.

froing he explained I was on to the wrong technical support number and that I should try elsewhere.

Tech support at the new number is much more helpful and gives us the good oil which is 7 bit, even parity and 1 stop bit, and soon the copy is being whisked into the UK packet switching network at 1200. We are having it echoed back on to our screen to see that the transmission is going through and are horrified to see sentences of garbage that keep appearing in the middle of the pristine text. Transpires the noise was coming in when the transmission is being echoed. Check with Sydney and all 16,482 words have got through.

I suggested to Matt ways in which I think this highly covetable portable modem can be improved. He tells me NetComm already have it well in hand. The finished model will have sound — essential if you want to know that dialling is actually happening — a battery recharger, which seems of marginal use given the wide availability of batteries, and a slightly snazzier casing.

For any business person travelling with a computer, this modem is definitely the way to go. True we had problems with British Telecom. But that is hardly NetComm's fault.

PS

When I finished writing this copy I wanted to transmit it directly into Your Computer's system using the portable modem. This I could not do. Matt had neatly fanged it and taken it to France with him. Sometimes I feel he goes too far. □

Product Details

Product: PocketModem 123

From: NetComm Australia,
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(02) 888 5533

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NE002

VP-Planner and Silk

Familiar Menus and Different Results

Despite their similar approach to spreadsheeting and integration, Peter Hill calculates VP-Planner and Silk have their own individual extended capabilities, and each has a very real niche.

IN THE beginning there was Visicalc. This definitive spreadsheet program created not only a new breed of software, but also a new breed of microcomputer users: the analysts. Partly due to Visicalc's enormous success, a new market of business users was awakened. It comprised those who were not satisfied with the software available at that time: enter Lotus 1-2-3.

Lotus 1-2-3 was the first 'integrated' program to win the hearts and wallets of microcomputer users. Its combination of extensive spreadsheet, basic data management and particularly its reproducible graphics sent it quickly to the top of the software sales charts, where it has remained since its creation.

It is hardly surprising that programs have appeared on the market which closely emulate Lotus 1-2-3 and even less surprising that they undercut the premium price which Lotus Development Corporation charges. Given the similarities between 1-2-3 and Visicalc, it's surprising that Lotus were so incensed as to take the Mosaic Software to court on the basis that the 'look and feel' of their product Twin offends Lotus' copyright. The burning question is not whether the cheaper 'similar' spreadsheets can emulate the 'Look and Feel' of 1-2-3 (this has already been demonstrated), but rather whether they can in fact emulate the dazzling performance of Lotus' flagship.

This review looks closely at two of the packages which emulate Lotus 1-2-3; in

The burning question is not whether the cheaper 'similar' spreadsheets can emulate the 'Look and Feel' of 1-2-3 (this has already been demonstrated), but rather whether they can in fact emulate the dazzling performance of Lotus' flagship.

common with this genre of software they are distinguished by their similarities to 1-2-3, some extended capabilities and relatively low price tags.

Despite the similar approach, VP-Planner version 1.0 and Silk arrive at differing results; both are intriguing in their extended capabilities and both are products with a very real market.

Menu Notes

Documentation and help facilities can make or break software: this is no less true with low-priced software.

In each of these areas, Silk is remark-

ably good. The slip-covered documentation is thorough, organised and readable, and covers each aspect of the software. The help system is novel and really does set the standard for help systems; in Lotus 1-2-3 and VP-Planner, consulting help requires suspension of the current activity analogous to having the program documentation in the next room from your computer.

In Silk, the analogy is to having an assistant who sits next to the computer continuously looking up the relevant reference section of the manual and presenting it to you as you continue with your work. In practice the help window takes up the right half of the screen and attempts to show short help sections for the task you are currently performing; the main shortfall of this system is its inability to make a cup of tea. Additionally, Silk is provided with keyboard overlays for both the conventional PC keyboard and the later AT keyboard where the function keys are (unfortunately) arrayed across the top of the keypad area.

VP-Planner lives up to the name of its publisher with a paperback manual which concentrates on the specialised data management capabilities of the package. Whilst there is an 18 page chapter on Worksheet Fundamentals and a 31 page appendix on VP Basics, the manual is not a full spreadsheet manual. Five chapters of the ten are given to the creation and operation of dBase data and Multidimensional Databases; they give a clear exposition, but be warned that the manipulation of Multidimensional Databases is not a trivial subject, either conceptually or operationally.

VP-Planner does not supply a keyboard overlay, which seems to be an excessively tight-fisted approach.

VP-Planner's help system is more conventional than Silk's; while it differs with the Lotus 1-2-3 system, the differences are really only in the manner in which one

moves from topic to topic. Like 1-2-3's system, the help is context sensitive, but in some areas (for example macros) rather more digging is required than in 1-2-3. In defence of VP-Planner, the topic is more complex than it is in 1-2-3.

Speedy Service

There is no snap answer to the question of 'king of the hill' in this comparison; each package has its own strengths and weaknesses. In execution times, Lotus 1-2-3 has the best average, but if your needs are mostly floating point (for example, financial calculations), VP-Planner has a substantial edge. Macros (recorded sequences of keystrokes which are replayed as if they were typed) are one of the breakthroughs of Lotus 1-2-3, and Silk takes these further and faster, also showing the best speed for file saving, loading and printing. Each of the clone packages has very acceptable speed relative to Lotus 1-2-3, but neither sustains any claim that it is 'faster' in an objective manner. Let's look at the performance aspects in some detail.

Operational Speed

On average, Lotus 1-2-3 won the day, showing an exceptionally good turn of speed in data management tasks and a healthy integer calculation time. VP-Planner was outstanding in its floating point tasks but only average in data management and integer routines. However, one must bear in mind that many applications are floating point, especially those in the world of finance.

If you have a particular application which you anticipate spending most of your spreadsheet time on, and it involves floating point calculations, the extra turn of speed of VP-Planner might be enough to tip the scales. The macro execution speed of VP-Planner was pleasing, but its emulation of Lotus 1-2-3 Release 1, rather than Release 2, prevented any optimisation of the macro using some of the later advanced features. Whilst Paperback Software claim background printing of worksheets as an advantage, there was little evidence of any significant improvement in delay times when printing; this was particularly so when Silk implements background printing so well.

Silk was not spectacular in the calculation speed stakes, and lost points for its slow data manipulation. Additionally, it was the slowest performer in the 'non-optimised' macro execution. However its ability to optimise a macro using built-in routines (in this case the fact that the

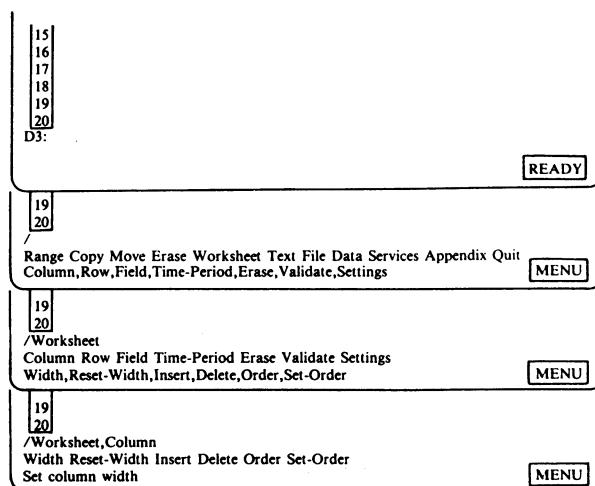


Figure 1. Silk's nested slash commands will be familiar to any 1-2-3- user.

{Down} command can take a parameter such as {Down 2} instead of {Down}{Down}), allowed it to record the fastest of the optimised macro execution times!

In terms of retrieving and saving files in its own special format, Silk won hands down; this is important since it encourages you to save your work with regularity rather than discouraging you. Printing times, were measured as the time elapsed from the issue of the GO command to the READY indicator becoming lit. Silk offers an elegantly engineered time sharing routine which permits printing when the keyboard/processor is idle. This aspect of Silk is a genuine saleable advantage relative to Lotus 1-2-3 for the serious user, and I am surprised that Daybreak are not giving more publicity to this feature.

Memory Management

With Lotus 1-2-3 Release 2, Lotus introduced 'sparse matrix memory management'. In brief, memory is now only absorbed by those cells in a worksheet which are occupied, rather than all those cells within the area of the spreadsheet. I tested the memory management of Lotus, VP-Planner and Silk using two different spreadsheets. The first of these was just a large, typical file of 100 kilobytes in disk space; the second was a 'sparse' matrix constructed on the diagonal, that is to say whilst the bottom-right cell was a long way from the top-left cell, the total content was small. No significant variation was shown between Lotus 1-2-3 and VP-Planner; each has available a large memory space to accommodate very so-

VP-Planner's authors have sensibly decided to emphasise the data management side of the product.

phisticated spreadsheets, and each handles 'sparse matrix memory management' well, with little information requiring little memory.

Silk, on the other hand, had significantly (40 per cent) less free memory to start with relative to Lotus 1-2-3, and did not handle sparse matrices at all well. Whilst Lotus took only 10 Kbyte of memory to accommodate the file SPARSE.WK1, Silk took 130 Kbyte of the little memory that was initially free to start with. The Silk manual claims full support for both the Intel/Lotus/Microsoft EMS and AST EEMS expanded memory systems, which is admirable; it is also much more likely to be necessary to invest in this hardware with Silk than with either 1-2-3 or VP-Planner.

Specialties of the House

Neither VP-Planner nor Silk are 'just clones'. Each has areas which have been emphasised by their authors to distinguish their capabilities. VP-Planner's authors have sensibly decided to emphasise the data management side of the product; the point is to provide a product which can act as both a spreadsheet and a



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database manager, an attractive combination to a small business.

The database management skills of VP-Planner are on two levels. Firstly, it can read and write dBase II and dBase III files directly. This capability is useful to those who already use dBase II or III, and effectively provides (at the very least) a flexible editor for dBase files for those who find the Editing facilities of dBase less than felicitous. I have used this capability to review and edit dBase III Plus files and can vouch that it is a more intuitive and flexible way to perform this task than via dBase itself. However, its use in this manner somewhat begs the question; if you already have dBase II or III, then you will not buy VP-Planner purely on its ability to manage data. In this case, it can be seen as almost a dBase add-on product, and at its modest price this might be an attractive proposition for serious users. The second level of data management promised by VP-Planner is the multi-dimensional database. A spreadsheet is two-dimensional (rows and columns), a consolidated set of spreadsheets is three-dimensional (for example, 'sales areas' as the third parameter) and a five-dimensional database defies description.

Silk's speciality is its hand holding. In this package, the authors have excelled in improving the already high Lotus standard of online help, and additionally provided a secure back-up path. As well as the novel full-time help system described above, it is possible to keep an on-disk log of all keystrokes in a session and later replay them. Thus, even the most horrific mistake (erasing three hour's work) or even a power failure does not mean disaster. A further level of security is provided by the optional creation of a backup copy of each file as a new save is made. This is the default operation of file saving. Throughout the construction of Silk, the writers have shown a willingness to diverge from the Lotus standard where that standard was not obviously the most transparent approach to a particular problem. A typical instance is password protection; Lotus tacked this on to 1-2-3 Release 2, and its hasty addition is evident. In 1-2-3 it is necessary to initiate the file save routine, press SPACE after typing the file save name and then P to specify a password is required, followed by the password. This Machiavellian approach was dictated by Lotus' desire for a high degree of compatibility between Release 1A and Release 2 of 1-2-3. In the case of Silk, the program automatically (and visibly) prompts for a password at the time of file saving.

Another feature of Silk is its search-and-replace function. This operates rather much like a word processor search-and-replace, except that it operates on formulae as well as textual cells. An example of the usefulness of this is the case where you wish to give a particular cell a name (for example, name cell B7 as SALESGRTH); it is then possible to replace all formulae and macros in the worksheet to reflect this change in one step. This feature is very welcome.

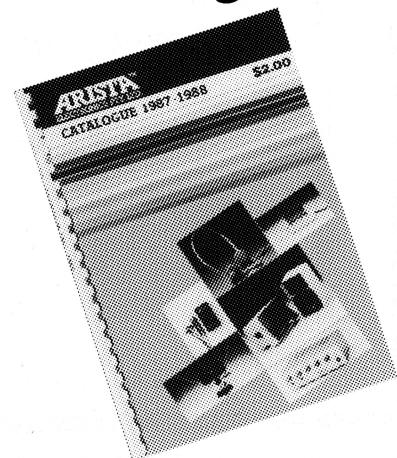
Waiter, there's a bug in my soup!

Neither VP-Planner nor Silk are perfect: VP-Planner: I created a macro called 'G' (for graph) which insisted on operating as if it were an autoexecute macro; each time the worksheet was retrieved, the macro automatically executed. This is not a major problem when the function of the macro is something trivial such as presenting a graph, but quite serious if VP-Planner decided to autoexecute a major batch update from a second worksheet. The second problem encountered was partly my fault; in the evaluation process, some confusion arose (with swapping between Silk, VP-Planner and Lotus 1-2-3 Releases 1 and 2) as to the naming of a worksheet. I ended up with a release 2 worksheet with a release 1 extension name (.WKS): — when VP-Planner attempted to load this, it required re-booting of the machine to break out of the confused software. Whilst it was partly my fault, it is interesting to note that Lotus 1-2-3 is able to handle this situation without any problem. The copy protection system on Lotus 1-2-3 is a damnable nuisance, but that applied on VP-Planner is even worse. Before you commit yourself to this product, be aware of the following: the copy-protected system floppy disk must be present in drive A: at all times during operation; there is no installation procedure for hard disk users; no backup system disk is provided and for the modest fee of \$US10, you can purchase a non-protected backup disk allowing proper installation on a hard-disk system, but only if you live in the US or Canada!

Silk: Silk does an excellent job of both plotting and printing graphs provided your plotter or printer is supported. The printers supported for graphs are those compatible with the Epson FX/RX standard, whilst support for plotters extends only to the Hewlett-Packard 7470A and 7475A. Whilst I got very satisfactory results for both a Star NX10 dot matrix

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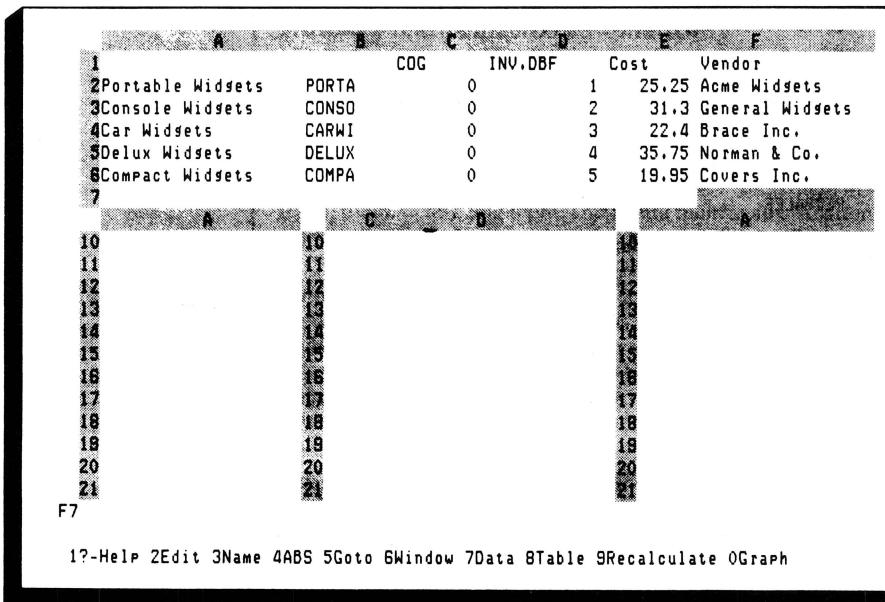


Figure 2. VP-Planner allows the creation of up to six windows simply by repeating/WW.

printer in high density mode and an H-P7475A six-pen plotter, you ought to check with the distributor if your hardware differs dramatically from these standards.

The fact that Silk's file structure differs with that of Lotus 1-2-3 means that it requires a file translation utility, which is provided. Whilst the utility performs reliably, it took as long as 5.75 minutes to translate a file of 100 Kbyte on hard disk, with no output information to the user as to progress during that time. This type of performance would become frustrating if one were using Lotus 1-2-3 at work and Silk at home on a floppy drive PC to allow continuation of day work.

The Original Recipe

VP-Planner sets out to be fully compatible with Lotus 1-2-3 release 1.0*, and largely achieves this; any exceptions I noted are mentioned in this review. Indeed, it has a number of features which allow compatibility with Release 2.x of Lotus 1-2-3. The consequence is that an experienced Lotus 1-2-3 user can be immediately productive using this package without having to adjust the memory of keystroke sequences at all.

Silk is an entirely different proposition; it uses a similar user-interface to Lotus 1-2-3, but the differences in operation and file format will initially slow those who are familiar with 1-2-3. Typical of these differences are the following:

The 'point-and-shoot' menu works like

1-2-3 except that you move around it by pressing the space bar for forward or the backspace key for backward. Many experienced 1-2-3 users will shrug this off, since it is more common to use the first letter of the command in a sequence such as /WDC<Return>.

The command /WDC<Return> doesn't work either; the Silk sequence to delete a column is /WCD<Return>. An appendix to the documentation lists about 15 such instances.

Macros are handled completely differently and indeed far better than in 1-2-3. Most tasks which involve setting up or specifying parameters in Silk are handled by opening a window on the screen to accept the parameters; for example macros and graphs are handled in this manner. The consequence is that, at the cost of compatibility, it is much more obvious which parameters are required and how they are to be specified.

The account, please

Both Silk and VP-Planner are considerably less expensive than Lotus 1-2-3. A comparison of recent pricing from a software discounter shows the following prices, inclusive of sales tax:

Lotus 1-2-3 \$569; Silk \$250; VP-Planner \$165, in other words 30 to 40 per cent of the price of Lotus 1-2-3. In the case of VP-Planner, if you want support for a plotter for your graphs or more sophisticated output to a graphic dot matrix printer than

the simple 'screen-dump' output built in to VP-Planner, then you also would have to purchase VP-Graphics; at the time of writing, the price and availability of this product was unknown.

Dessert

When you are in the peculiar position of having three competitive programs on your hard disk at the one time, it is interesting to note your usage of each; a program has to have the right feel to encourage you to choose it over the other two. Silk has the right feel. In a number of respects, DayLight Software's claim that Silk is everything that a Lotus Version '3.00' would be is a serious claim. Additionally the extensions which have been built in are valuable and well-considered. Silk runs smoothly (dare I say 'as smooth as...') and is really only let down by its memory management. As a spreadsheet and integrated program for the home user, this is my pick above Lotus 1-2-3.

VP-Planner sets out to conquer a different market and does so quite effectively; this is the program for a sophisticated user who is familiar with 1-2-3 but does not wish to pay the price of originality. Whilst the data management extensions of VP-Planner are interesting and well crafted, I would be willing to bet that they are rarely explored. I suspect sales of VP-Planner will centre on the professional user who uses Lotus 1-2-3 at work and wants a high degree of compatibility on his home system to allow work to be performed at home without the need for file translation.

At the end of this feast you have probably gathered that I really enjoyed Silk; on a value-for-money basis it is an outstanding meal. □

Product Details

Product: Silk

From: Daybreak Technologies Inc, California

Distributor: PC Extras, 1 Marian St, Redfern 2016 NSW

(02) 319 2155

Price: \$345 taxed

Product: VP-Planner

From: Paperback Software, Berkley, California

Distributor: Pantek, (03) 836 9633

Review Copy From: Perfect Interface, 8 West St, Nth Sydney 2060 NSW

(02) 957 1112

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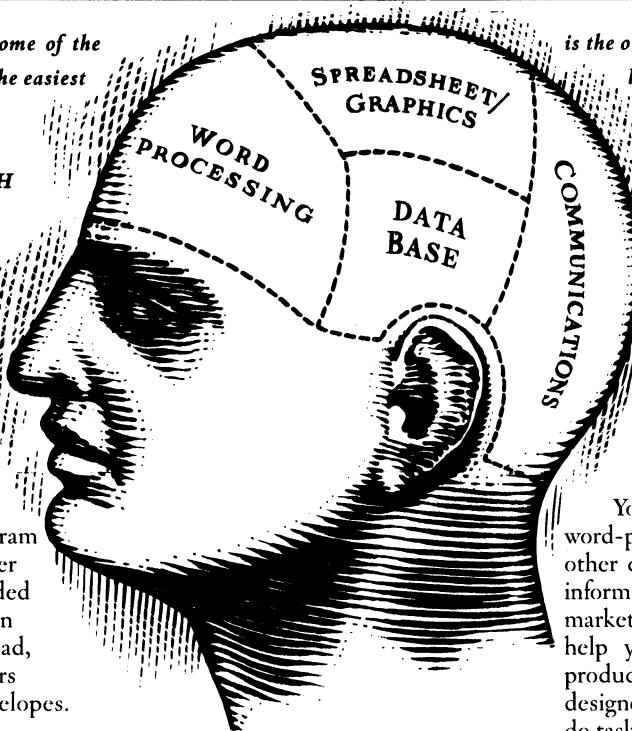
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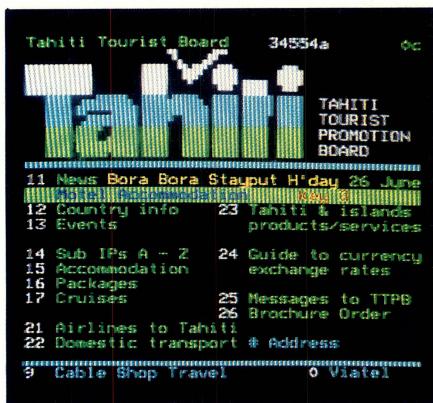
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VIATEL TRIVIA



Here it is, a competition to help while away some of those Christmas holiday hours and make you more familiar with what Viatel has to offer — and perhaps win a fabulous prize too!

WITH THE popularisation of tit-bits of information (otherwise known as trivia), it was only a matter of time before someone would stumble across the idea of getting online and getting into one of the most popular and certainly most diverse and interesting videotex services around — Telecom's own Viatel. For the aficionados of trivia statistics, Viatel now has some 30,000 registered users, who are catered for by over 200 service providers, which itself, is no trifle.

To enter this competition you will need to have a subscription to Viatel. For those who do not already have one, this can be organised through your local Telecom Business Office, and in a short time, you will have your sealed envelope containing your requisite Customer Identity, Personal Password and Viatel Number. You will be up and running and in the competition, once you have these identifiers, and you are seated in front of your PC (connected to a 1200/75 baud modem, of course), you're all ready to go! Other rules and conditions are given in a separate box.

As far as has been humanly possible, items which would be changed or updated by the time the quiz goes to print have not been included. And, don't think for one minute that this is a fund raising exercise for the service providers... only three or four of the questions actually require you to buy a screen, and these are for nominal values.

Prizes

The prizes we have lined up for you are well worth your time and effort, in any event —

1st Prize: \$400 worth of access to Viatel — that could take you into the wee small hours of several nights (or possibly make the difference to your stocks and shares wheelings and dealings).

2nd Prize: \$250 worth of access to Viatel — that's no small amount of fun, entertainment and business.

3rd Prize: \$100 worth of access to Viatel

— which gives more than just a look around!

There are also a further 10 consolation prizes, each consisting of one year's subscription to Your Computer.

So, you have 13 good reasons to have a go at the quiz... the worst you could do, would to become more familiar with the services offered (and find some to put to good use).

Entries close with the last mail on February 1st, 1988. Prizes will be awarded on the basis of the number of correct answers given; neatness and presentation will be used for tie breaking, if necessary.

Competition winners and the answers to the quiz will be published in the March issue.

Now to the Nitty Gritty . . .

There are 100 questions in all, relating to multifarious service providers. The questions vary in difficulty and obscurity, (some are a bit cryptic) but all of the answers are indeed 'answerable'! A recent issue of the Viatel Magazine and Directory will be of considerable help, and indeed, some of the answers can be figured out even before logging on.

Here are a few tips to head you in the right direction —

- Go through all of the questions and take a guess at what the answers could be.
- Look carefully through the Viatel Magazine and Directory (any edition should do, but the more recent, the better) and see if you can categorise the questions.
- The most economical way to tackle this is to do as much preparation as possible off line. Work out as many hunches as you can and try to tackle them in a number of small online bursts of activity.
- A little bit of time and logical thought will pay off in the long run

To start you off, let's have a look at one of the more obscure questions —

What is a 'caper fare' and who offers them?
A 'fare' most often refers to payment for some sort of transport. A look through the

VIATEL TRIVIA

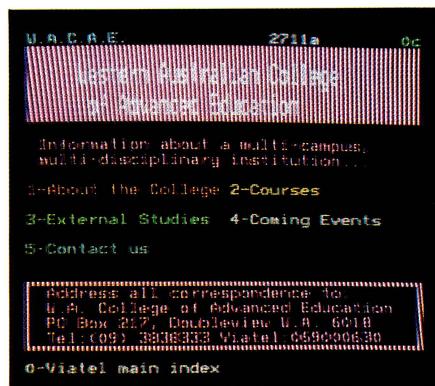
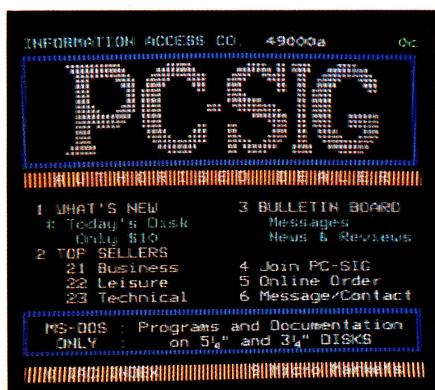
Viatel Magazine 'Subject Index' does not have the heading Transport, so we must think of alternatives or subsets. How about air travel, or train travel, or even perhaps car hire? A check through the directory turns up a number of entries including listings under airlines, cruises, car hire and train travel. There is a lot to choose from, and from here it is a matter of educated guessing, but if I were you, I'd 'keep a track' of where I was up to (a little cryptic clue may help things along).

Here are the questions and Good Luck (and don't forget to read the rules)!

1. A.A. are potentially the initials for what international airline, which in fact uses the initials AR?
2. Which service provider offers to 'put your child's name in a story of your choice'?
3. The WA TAFE offers courses in what four European languages?
4. What sequential number combination shows you what's new on Viatel?
5. Residents of which state are restricted from entering quizzes and prize games on Viatel?
6. These lines will never intersect, no matter what language you speak. What foreign language journal can be accessed from these pages?
7. If you were a Greek mythical poet and musician, which island namesake might you head to for your holiday? What days would an amphibious seaplane not be able to deliver you to your destination from the mainland?
8. A type of stocking, perhaps, but this board will allow you to buy a type of vehicle. Name a current item for sale.
9. When the lights go out, what item could you find on Viatel to illuminate your life, and where would you find it?
10. Furry friends find feline fiction. Name the title of the book in question and the author.
11. Numismatists, according to Jackman, dream of a certain type of possession. A set constitutes how many pieces?
12. We will be celebrating our bi-centenary next year. If Captain Philip had entered the year of his arrival when he landed in Sydney Cove, on Viatel, where would he find himself on the database?
13. What does the PIP in Piptel stand for?
14. The Wesley Central Mission is part of what Church?
15. How many consular offices does Australia have abroad?
16. I'll be a monkey's uncle . . . a jigsaw puzzle on Viatel. Who has it and how much does it cost to complete if you make only two mistakes?
17. Urea! I have found it. (You may need a fertile imagination for this.) The farmers back east may not be able to help, but west of the

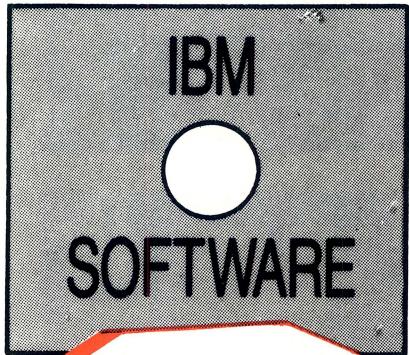
border . . . What is the code number for urea listed by this group?

18. Expo '88 commences in Brisbane, in April next year (naturally enough). Currently there is a special on ticket sales. How much can be saved on a season ticket if purchased now for a single adult, and as a member of a group of 30+?
19. Name two service providers on Viatel who can help you with genealogy.
20. Which of these offers to search your family name and provide you with a 'certificate of Blazon of Arms and Origin of Name'?
21. Going overseas? Maybe you should check the Consular Travel Advice listing by the Department of Foreign Affairs. When were Haiti and Surinam added to their list of countries where caution should be used?
22. Is a 'friendly society' just another name for a convivial community? Perhaps not. What 'commodity' do friendly societies deal in?
23. Viatel has a greeting cards facility. How many different standard greeting cards can be sent from the eight categories?
24. Name the doctor who started the online medical advice service called COMPU-DOC.
25. Viatel has introduced a new facility called an Inactivity timer. This will log your computer off after what period of inactivity?
26. Jargon is the name of the language game — especially when it comes to computers. What are the first and last entries in the 'Jargon Index' *a la* Viatel?
27. The Commonwealth Scientific and Industrial Research Organisation provides helpful information on a number of topics, including building hints. What is the genus and species name of a pest that they list which will attack damp wood?
28. Car Australia list new car prices as a part of their service. How many versions on the Camira theme are currently listed.
29. Of the four service providers under the heading of National News, which one presents a full news item as presented in the Viatel directory?
30. It takes two to tango . . . According to one of the opinion polls on Viatel, who should pay for vandalism?
31. What is the name of GEC's recipe service?
32. Trawler Owners Association of Australia, a node of Fishnet, operate a quiz about Australian Shores and Seas. What animal symbol do they award you with when you get a 'question correct and what symbol when you get it wrong?
33. How many people, according to Viatel, registered as new users of the system between March and June 1987?
34. What is the memory capacity used by the Accuratings computer to help punters 'win more often'?
35. What 'world first' did Australian building workers achieve in 1856?



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36. Which service provider has a game which 'sets you up as an international spy'?
37. I'm game if you are! What or who is Jolly?
38. What was the Counter Disaster College known as in 1956?
39. Let your fingers do the walking (tapping?)! Who does the Yellow Pages invite you to hunt down in their familiarisation game?
40. If you are three metres tall, have red hair, black skin and get your jollies from throwing stones and playing with fire, who must you be according to Dungeon and Dragon lore?
41. What airline, recently acquired by TNT, is depicted in its logo by two opposing arrows?
42. How many safety care videos do the Victorian Employers' Federation have on offer?
43. In Helsinki, what is the most 'economic way to travel'?
44. Which hotel corporation group uses the Southern Cross constellation as part of its logo?
45. OTC has a new logo. How many 'bits' of data accompany the corporation's initials?
46. Of the three state bank service providers, which one uses a graphics logo incorporating the words 'State Bank' as its front page?
47. If you talk to the trees, they may put you away... but if you talk to the stuff you walk on, what page would you end up on?
48. Walt Disney created three 'fantasy worlds' one of which was described as 'the land of things to come'. A service provider of the same name appears on Viatel. What commodity do they deal in?
49. 1987 is the Chinese year of what creature?
50. What is the interest rate currently listed by the State Building Society for first time mortgagees?
51. Which member country of the ASEAN nations has a Sultan as its head of government?
52. Ansett Airlines has a number of clubs catering for various groups of people. What is the name of its club designed for the disabled flyer?
53. Electronic Mall's 'Sight and Sound' lists the top 30 albums each week? How many Viatel pages does this list constitute?
54. What does the acronym CISSsa stand for?
55. What well known viticulturalist provides a 'Viatel-order' wine and spirits service under the Money Watch umbrella?
56. Numerically speaking, which service provider has the largest number listed in the Viatel Service Provider directory?
57. Qantas is a member of what association?
58. What term describes the practice of hiring a completely equipped yacht or boat, which you crew yourself?
59. As we well know, Australians are renowned as a meat eating society. In recent years, has the trend been to consume more or less meat?
60. What city on the south coast of NSW is the 'gateway to the Leisure Coast'?
61. In which Australian city does Aladdin's Tours operate?
62. What regions of the world will benefit from OTC's proposed Satnet Service?
63. What city outside Australia, does Apple list as housing one of its dealers?
64. According to the experts, how many years of tertiary study is needed to secure work in the field of psychology?
65. What three subjects are covered by the Edutext service provider?
66. How many games on Viatel offer prizes of \$50.00 or more?
67. If you are after 'clean, dirty, sick or rude jokes' who should you turn to?
68. What symbol appears in the lower left-hand corner of the Victorian Employers' Federation shield?
69. The Commonwealth Bank calls its ATM service 'Autobank'. What is the name of its online homebanking service?
70. Which motel/motor inn in our nation's capital is named after a famous Australian poet?
71. Who sponsors the Chess Master games?
72. What are India's three major seasons according to Viatel?
73. Magnetic Island is situated 8 km east of which Northern Queensland city?
74. The National Trading Post offers two alternatives for placing classified advertisements. Which option is based on a sliding scale, depending on the price of the item for sale?
75. From where does NEIS operate? (Organisation and City)
76. What do the letters NRMA stand for?
77. The NSW Tab covers which non-racing sport?
78. Which electronics company 'want you to have the best'?
79. Queensland Railways has a number of services. List all of the _____lander lines.
80. How many buildings comprise the RAIA Archidata logo?
81. What project material topics can school students expect to find on Archidata?
82. What number do you key in to repeat the page you are already viewing, with any updates?
83. In what year was the Royal Australian Chemical Institute granted its Royal Charter?
84. What is a 'caper fare' and who offers them?
85. What Service Provider has a page called the PINKBOARD?
86. What group of people will benefit the most from the existence of Supertext?
87. Occ*Haz operates from which hospital?
88. Which two ports does the Abel Tasman connect?
89. What company starting with the letter 'T' was founded in 1982 under the chairmanship of Sir Rupert Myers?
90. When you want to find out the time on Viatel, what number must you key in?
91. Who, according to their magazine advert, is Australia's largest provider of undergraduate and post graduate degrees and diplomas?
92. The Victorian College is situated in what Melbourne suburb?
93. Which service offers *free* advice and help in tracing your family tree?
94. According to the statistics provided by Real Time Idiom, which age group in Australia has had the highest number of reported AIDS cases?
95. Australia has the third highest divorce rate in the world. Who comes in first and second?
96. Which service provider combines Eastern and Western horoscopes?
97. How much can you expect a Tarot reading to cost you on Viatel?
98. Name four Piptel business newspaper publications.
99. What is the current population of Australia?
100. The Australian Caption Centre provide teletext based subtitling for many programs both on the ABC and commercial channels. How would you be able to tell from your local TV guide whether a program was subtitled or not? □

Rules

- 1) The competition is open to all users of Viatel or new subscribers.
- 2) The winning entries will be those with the highest number of correct entries. In the event of a tie, neatness and presentation will be used to decide the winner.
- 3) Forward entries to: *Viatel Trivia Quiz, Your Computer, PO Box 227 Waterloo 2015 NSW*. The competition closes with the last mail on December 31, 1987.
- 4) Employees of The Federal Publishing Co, and Telecom Australia (and their families) are not eligible.
- 5) Descriptions of the competition and instructions on how to enter, form part of the competition.
- 6) The prizes are as described here; there will be no cash alternatives or exchanges. Entries will be judged by the Editor of *Your Computer* or his nominee.
- 7) The Judge's decisions will be final and no correspondence will be entered into regarding the entries.
- 8) Winners will be notified by telegram and announced in the March 1988 issue of *Your Computer*.
- 9) The promoter is The Federal Publishing Co, 180 Bourke Rd, Alexandria 2015 NSW.

FAIRLIGHT INSTRUMENTS

The First 10 Years

In 1988, Fairlight Instruments will celebrate the 10th birthday of its most successful musical product: a digital musical instrument which almost single-handedly redefined the sounds of the 80s, the Fairlight CMI. Andrew Symaniz tracks its development . . .

TEN YEARS AGO, about the time when the first consumer video recorders began appearing on the market, musicians started experimenting with domestic multi-track audio recording.

Also about this time, professional audio and video recorders began sharing a common timing reference called SMPTE (Society of Motion Pictures & Television Engineers) time-code which, when recorded onto the various audio and video program tapes, effectively 'locked' together sound and image during the final production stages.

In recent years, music making and video production have become increasingly more independent. The application of digital technology has consolidated these two fields of creative endeavour and broadened the capacity and sophistication of the audio/video production process.

Now, on the eve of World Expo '88 — a celebration with the theme of 'Leisure in the Age of Technology' — it has become economically viable to set up a 'domestic' quality music/video production suite in the home, for about the cost of a late-model family automobile.

If the past decade is any indication as to the future of home soundtrack/movie making, what seems state-of-the-art today may well be the domestic yardstick 10 years down the track . . .

For Australian hi-tech company, Fairlight Instruments, the coming Bicentennial celebrations will coincide with the 10th birthday of its most successful musical product: a digital musical instrument which has almost single-handedly redefined the sounds of the 80s — the Fairlight CMI.

Today, Fairlight employs over 100 personnel in research and development, manufacturing and administrative roles at its Rushcutters Bay headquarters in Sydney. However, not all this collective effort has been music-related.

In The Beginning . . .

For Fairlight co-founder, Kim Ryrie, it all started during the late 60s when, as a 15-year-old schoolboy, he began convincing his publisher father, Colin Ryrie, to

Musically Curious?

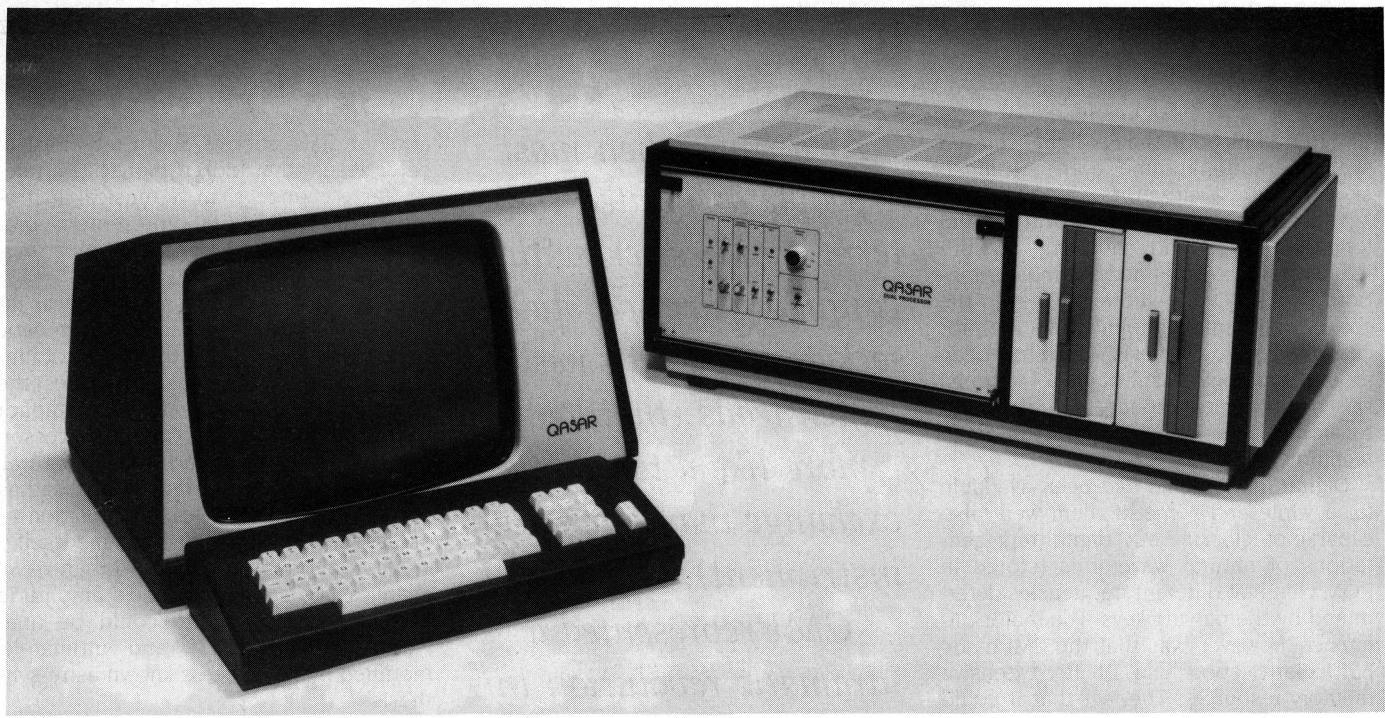
FOR THOSE who'd like to know more about computers and music, Andrew Symaniz' series 'Microcomputers, MIDI and Music' covered programmable sound generators in our May '87 issue, and digital sound sampling in June. In August, his topic was digital sound synthesis, and in September, non real-time music composition; October's article discussed several real-time music composition peripherals, and the article in this issue covers subtractive synthesis. If you'd like copies of these articles, refer to the Services page.

If you'd like to know more about Fairlight and its products, they can be contacted at 15 Boundary Street, Rushcutters Bay 2011 NSW, or phone (02) 331 6333.

launch a new electronics hobbyist magazine, Electronics Today (re-named Electronics Today International).

Some years later — inspired by the sonic possibilities unleashed by the likes of the Moog synthesiser (on Wendy Carlos' album *Switched On Bach*) — Kim decided to run an analogue synth construction project for the magazine, the ETI 4600.

After overseeing the development of this highly successful project, Kim left the magazine in 1975. He teamed up with two other electronics designers (his old school friend, Peter Vogel, and Tony Furse, who at one stage designed internal circuits for Fairchild in the US) to begin work on their ultimate dream machine — a digitally-controlled digital waveform generator (designated officially as the Qasar Multi-mode-8, or M-8).



Soon after Fairlight Instruments was founded in the mid-70s (on a capital of just \$6000), Peter and Kim began supporting their musical R&D with a number of small money-making projects.

Having tried (unsuccessfully) to sell his patented music-controlled video synthesiser to potential financiers, Peter turned his talents to the development and production of specialised colour processing and effect equipment for use in broadcast television stations. His Electronic Paintbox, which converted monochrome signals into six colours, sold well locally, since colour transmission was still new in Australia.

The Birth of the CMI

The Qasar musical project had a curious ten-year history of R&D. It was conceived in the late 60s, by Tony Furse; his first few Qasars used a mixture of digital and analogue principles for generating and manipulating sounds in real-time.

The final development of the M-8 system taken up by Peter and Kim, was based on a dual M6800 microprocessing architecture — each processor could communicate through common areas of memory 'out of phase'. This configuration enabled effective throughput comparable to mini computers, but at the reduced expense of using 'micro' technology.

The first M-8 prototype generated a whole series of complex waveform cycles for each of its eight voices, via additive synthesis. But the size and power requirements of this machine made it impractical for use outside the 'sound laboratory'. The

M-8 required no fewer than two people and a crane (!) to move, and employed just 4 kilobytes of static RAM (then, considered a 'huge' amount!).

The real breakthrough, however, came only after some specialised hardware engineering. The Qasar's sound channels were reduced to eight compact voice modules on PC-cards that could generate sounds directly. Each sound card contained 16K of peripheral waveform memory, and was controlled by the computer to provide pitch and envelope variations of the stored waveform.

Apart from the overall reduction in size and increased ease of movement, these improvements virtually halved the cost of the necessary hardware. With the cost of 16K dynamic RAM chips also dropping rapidly, Peter and Kim completed work on the M-8 Qasar early 1978. They then set about incorporating these ideas within a more ambitious streamlined version.

In addition to the 128K of peripheral waveform memory, the new machine required 64K of system memory plus 16K for video processing — 208K of RAM in total. This was the configuration Peter and Kim dubbed the Computer Musical Instrument (CMI).

User Friendly

The hardware and software architecture was originally designed to be as open-ended as possible. This meant that future enhancements to the basic system needed to be no more complex than providing a new system floppy disk or plugging in expansion modules.

Figure 1. The Qasar Multimode-8 system was based on a dual M6800 microprocessing architecture — each processor could communicate through common areas of memory 'out of phase'.

Kim's and Peter's motivating philosophy had always been to create a computer musical instrument — a flexible and portable arrangement of components that could be effectively controlled by musicians or non-technical users unfamiliar with computers and programming.

The whole creative process of music-making using computer technology should be as simple as possible, they reasoned. The musician should not have to sacrifice flexibility, limit productivity or be restricted in any way by the machine's 'human interface'.

To achieve this goal they worked on providing several 'musician friendly' methods for communicating with the computer — a velocity-sensitive piano-style keyboard, a light-pen and interactive graphics display.

By late 1979, a pilot Fairlight CMI was ready for demonstration. Also about this time, one of America's top live sound engineers, Bruce Jackson — himself an ex-Aussie whose past credits included Elvis Presley and Bruce Springsteen — came home to visit his mother. He called in to see what his next door neighbors (Kim and Peter) had been up to since setting up shop in Kim's grandmother's basement.

Bruce was impressed... so much so, that he spent the next year promoting the

CMI in the US. Soon the Fairlight achieved such international fame, even non-musicians became aware of its capabilities.

The CMI's waveform modification and long-duration sound sampling capabilities initially commanded the most attention at music trade-shows. However, the concept of sound sampling, (like the process of additive synthesis, which had been around long before subtractive methods) was not *that* revolutionary — just an extension of some well-known digital organ techniques.

Digital instruments had been available for a while and some of them were also capable of 'clocking out' digital representations of natural waveforms (stored in ROM chips) at different frequencies determined by the playing keys. The major difference, however, was that the CMI made particularly good use of its extensive memory resources. The fact that it could record a whole train of dynamic waveform cycles via analogue to digital conversion set the Fairlight instrument aside in a class of its own.

At a time when most people associated the term 'synthesiser' with a confusing

At a time when most people associated the term 'synthesiser' with a confusing array of dials, sockets and a rat's nest of patch leads (that looked more like a telephone exchange than a musical instrument), the Series I CMI represented a dramatic revolution in concept for most musicians.

array of dials, sockets and a rat's nest of patch leads (that looked more like a telephone exchange than a musical instrument), the Series I CMI represented a dramatic revolution in concept for most musicians.

Considered a 'transparent' musical instrument (one that has no characteristic sound of its own — and therefore not limited to any particular range of timbres) the name, Fairlight, soon became a metaphor for the ultimate digital sound processor. As many as eight individual 'natural' sounds could be recorded and utilised as part of a complex musical composition — all assembled within the machine itself.

Also, information about 'progressive' changes in a sampled sound's amplitude and harmonic structure could be analysed, displayed in 3D and, ultimately, modified by the process known as re-synthesis.

Several years later, the Series II CMI was released. It used dual 6809 processors in place of the 6800 pair, and delivered improved fidelity, even greater potential for expansion and more sophisticated software control.

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Page R

One of the Series II features which immediately captured the imaginations of musicians and composers across the world was its Page R Sequencer. This 'sound-event' sequencing function, initially drawn up by programmer Michael Carlos from Kim's rough specifications, made the Series II suitable for composing rhythmic sequences.

But despite its designer's original intentions, many users began employing this marvelously interactive (downright addictive) piece of software for more general musical applications. As more and more features were incorporated to assist in this task, Page R's powerful real-time editing features became increasingly capable of assisting in the creative process.

The Page R sequencer was not originally designed to be a particularly efficient memory storage system. Its multi-voice patterns contained a fixed number of bytes for note information — regardless of how many musical notes were actually being used. But it was precisely this unique memory structure that prompted more inspirational composing methods.

Musicians were able to massage music performance information in real-time while the whole composition played or looped between user-specified points within a song. Thus, repeated overdubbing of selected parts imbedded within an orchestral arrangement became a breeze.

The Voicetracker

Today there is a range of Fairlight products — each one hand-built and designed to the same exacting standards as the CMI. One of these products is the Voicetracker, which, in essence, is an interactive controller device that 'tunes-in' to the timbral characteristics of virtually any monophonic sound source. This information is then digitised and analysed in real-time, and used to drive either a MIDI or voltage-controlled synthesiser — but with an expressiveness and subtlety not possible using current generation keyboard controllers.

Sound parameters such as pitch, dynamics, harmonic content (brightness) and 'noise' components can be accurately expressed on virtually any external synthesiser (depending on the capabilities of that external synth). Graphic details of intonation and pitch can be displayed in real-time for visual reference. And comprehensive Zoom and Pan facilities enable the performer to focus in on any range of musical input with an extremely fine degrees of resolution.

Tracking response-time is fast — typically, about 10 milliseconds. This is made possible by its patented pitch-detection technique, driven by a MC68000 32-bit processor. Since the tracking process is remarkably tolerant of background noise, the Voicetracker can be used successfully live and even in the studio to replace whole tracks of material recorded on multi-track tape.

One recently devised feature enables the Voicetracker to provide intelligent 8-note polyphonic harmonization in real-time. The musical key, harmony structure, voicing and MIDI assignment are all user-definable. This enables a single performer to augment a performance with the backing sound of (say) an entire string, brass

practical applications. Briefly, the CVI is a general purpose video effects/paintbox system that offers a wide variety of real-time digital effects such as chroma-key, real-time zoom, pan and stretch, colourisation and mosaic, plus the ability to create user definable windows of any shape for mixing areas of video together.

Colours, textures and brush strokes can be combined with live video for multi-plane images. These images can then be stored, dissected or manipulated in numerous other ways via an interactive drawing pad. Most effects can be combined together, and visual parameters can be triggered or controlled from either pre-programmed sequences, an external computer (Amiga, IBM PC) or by music.



Figure 2. The CMI made particularly good use of its extensive memory resources and could record a whole train of dynamic waveform cycles via analogue to digital conversion. It represented a dramatic 'revolution' in concept for most musicians.

or choral section using a multi-timbred synth setup.

Since user-defined harmony 'matrices' are stored and recalled as presents, a live performer can instantly change the root key and/or style or harmonization, mid-song (to, diatonic, pentatonic, melodic minor, whole tone, Glen Millerized or whatever musical scale...).

The Computer Video Instrument

In early 1985, Fairlight released its first low-cost video effect and graphics generating system. This device — developed by Kia Silverbrook, one of the research team working on the CMI — met with instant worldwide success. It was called, predictably enough, the Fairlight CVI or, Computer Video Instrument.

The CVI has a multitude of features and

multiple CVI's can be cascaded digitally, to provide even more complex combinations of effects and multiplane fields — without significant loss of detail.

In recent years, Fairlight has experienced considerable growth and diversification. Not only has the company honoured its commitment to maintain hardware and software compatibility with each series of CMI, but each one has set new, higher standards in sound quality and quantity, performance intelligence and user-access.

In the next article, we'll take a closer look at some of the revolutionary features of the recent CMI Series III. Following this, we'll investigate how the Fairlight team intend maintaining their strong tradition for research and innovation through the next decade. □

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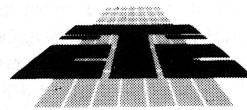
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Schools Across Australia

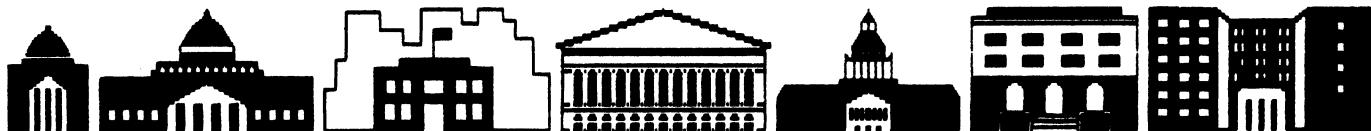
This School-based Bicentennial Initiative aims to create a National Computer Link between Australian schools so that ideas, resources and experiences can be shared.

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FONTASY

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DO YOU HAVE a need for a small amount of desktop publishing (DTP) such as brochures, fliers, invitations, letterheads or any one of the myriad of such things most offices need? The cost of a professional DTP kit, including software and hardware, could well run over \$20,000 and would need an expert to run it.

There is a bottom line alternative. For a paltry \$150 you could own a copy of Fontasy which combines the talents of a reasonable graphics editor and wordprocessor with a range of fonts that would knock your eye out. It works well with a simple dot matrix printer such as the one you probably currently use for most printing tasks. The quality of output is acceptable for many applications currently being sent out to your local friendly printer and we all know how friendly he becomes when asked to quote on a short print run! Fontasy runs happily on any IBM PC or compatible and favours a 640 kilobytes environment.

How good do you call 'acceptable'? Judge for yourself. Figure 1 was produced by Fontasy and the original printed on a

Ewart Stronach has the lowdown on the bottom line alternative to costly DTP kits — it offers the talents of a reasonable graphics editor and wordprocessor combined with a range of fonts that would knock your eye out.

fairly tired Riteman 15, a standard office style 'dottie' which emulates an Epson. The headings and different type fonts are just some of the literally hundreds available and the cute little sketches were either plucked from ClipArt files or freehand drawn with the same program. All this for \$150? Yes, and more!

Open the box . . .

Fontasy comes in a bright yellow box, containing two floppy disks, a manual and two booklets of available add-on fonts and art clips. I must confess that prior to seeking out the Australian supplier, I had played with a copy of the program without documentation and have seldom been so happy to get the real thing. Every time I used the program, I found new features but would have spent years finding its true power. The program takes up 258 Kbyte of disk space, including 26 different type fonts and includes a full sub-directory of help files, printer configuration files and utilities. A second disk of accessories is supplied, but more of that later.

The range of fonts is almost endless. I have seen systems with as many as 500 fonts available taking up 2.4 Mbytes of hard disk space. This creates its own problems with search time through the massive directories and, in fact, the system's inability to look at that many files. The solution is to simply select the most used fonts to retain on your hard disk and put all the rats and mice on floppies for occasional use.



FONTASY... Paupers Publishing Program

Installation of the software is really just a matter of copying the distribution disks to a working copy and telling Fontasy what type of monitor and graphics card you have. Typing that magic word, Install, will lead you gently into a series of on-screen questions, each with adequate explanation of the answers expected. A wide range of printer drivers is offered including H-P LaserJets with resolution of up to 100 x 100 dots per inch. All Epsons, C.Itohs, most Radio Shack and IBM colour printers are included, although colour output is not available. After installation, Fontasy is ready to replace your inky fingered local printer.

Now, dear reader, simply type FY and watch in amazement as your screen goes blank apart from a long narrow cursor, blinking away in the right hand top corner. Type in something... anything. Notice it looks different: Fontasy has defaulted to its basic type font called STD.FY (Standard). Pretty dull innit? Now press F5, wait while Fontasy looks at the disk and type it again. That looks better, now we have a large Gothic style print, just one of the many available. Already you can feel the power that Gutenberg or Caxton must have felt.

Fontasy's command structure is necessarily top heavy, there's lots of commands to be given; you get a Cue Card to lay along the top of your keyboard and an A4 size Quick Reference Summary card. You could battle through with these and the help files available but nothing beats the documents. The manual is about 250 pages, in paperback book style, which makes it a little hard to read while at the keyboard. It is well set out, very well indexed and splattered with illustrations, most of which were generated by the program. The first section is an overview and installation; Chapter 3 gets right into the nitty gritty. Without reproducing the entire manual, I will endeavour to cover the main points.

Prosoft are not new to this type of program, and I have used an earlier version of Fontasy written for a Tandy Model 1 or System 80, called Dot Writer. Dot Writer was driven by a wordprocessor or text editor and did not display its type fonts on screen. The commands for changing fonts or laying out your work were simply placed at the left hand side of a text line and prefixed by a dot or full stop. Fontasy follows this convention but allows such commands to be entered while showing the result only on the screen.

By pressing the Escape Key, you invoke a bottom line box, called the command

PRODUCT: FONTASY

PURPOSE: A TEXT AND GRAPHICS PROCESSOR.

PRICE: \$150

SUPPLIER: PROSOFT, CALIFORNIA

FROM: BUSINESS PLANNING AND ASSOCIATES P L 6 GILROY WAY, LESMURDIE, W.A. 6076

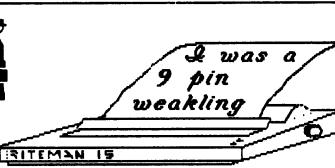
Do you have a need for a small amount of desk-top publishing such as brochures, fliers,

invitations, letterheads or any one of the myriad of such things most offices need? The cost of a professional desk-top publishing kit including software and hardware could well run over \$20,000 and need an expert to drive it.

There is a bottom line alternative. For a paltry \$150 you could own a copy of FONTASY. Fontasy combines the talents of a reasonable graphics editor and word processor with a range of fonts that would knock your eye

out. Fontasy works well with a simple dot matrix printer such as the one you currently use for most printing

"dottie" which emulates an Epson. The headings and different type fonts are just some of the literally hundreds available and the cute little sketches were either plucked from "clip art" files or free hand drawn with the same program. All this for \$150???? Yes, and more!



before & met.....

DR FONTASY

tasks. The quality of output is acceptable for many applications currently being sent out to your local friendly printer and we all know how friendly he becomes when asked to quote on a short print run! Fontasy runs happily on any P.C. or compatible and favours a 640 K environment.

How good do you call "Acceptable"? Judge for yourself. This page was produced by Fontasy and the original printed on a fairly tired Riteman 15, a standard office style

two floppy disks, a manual and two booklets of available add-on fonts and art clips. I must confess that prior to seeking out the Australian supplier, I had played with a copy of the program without documentation and have seldom been so happy to get the real thing. Every time I used the programme, I found new features but would have spent years finding its true power. The program takes up 258 Kbytes of disk space, including 26 different type fonts and includes a full

Figure 1. The first page of this article as seen by Fontasy and printed on a standard dot matrix printer. The sketches were either plucked from ClipArt files or free hand drawn with Fontasy.

Fontasy	1	2	3	4	5	6	7	8	9	10
Value for money	☛	☛	☛	☛	☛	☛	☛	☛	☛	☛
Ease of use	☛	☛	☛	☛	☛	☛	☛			
Documentation	☛	☛	☛	☛	☛	☛	☛	☛	☛	☛
Good old fashioned Fun	☛	☛	☛	☛	☛	☛	☛	☛	☛	☛

Table 1. Using Fontasy itself, Ewart Stronach rated the program.

IBM owners PC, JX, XT, AT, PS/2

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line. A command abbreviation is typed in and the program responds. There are about 54 'dot' commands plus a full range of function key, direct commands. These dot commands are abbreviated to 2 letters and most of them make enough sense to be easily remembered. For example, the command .BF followed by a filename, stands for Begin Font and calls up the subsequently named type font. Any of these dot commands may be issued while using the program on screen or embedded in an ASCII file for automatic usage.

Fontasy, like so many graphics programs, works best with a mouse. It is however, one of the few such programs which will honour both a mouse and the keyboard at the same time. This affords great flexibility when in the full graphics mode as very fine cursor movements are easier with key strokes than most mice. This ability of Fontasy's to mix freehand graphics with text is perhaps its strongest point. The graphics mode allows most of the normal inputs, such as line drawing, with a choice of thickness, rubber band style lines which may be moved about on screen before fixing in place, automatic box and circle drawing, filling with a range of patterns and so on.

Personal Genius

Having added your touch of personal genius to your text, it is a simple matter to tidy up the inevitable mess. A portion of graphics or text may be marked and picked up. Once marked, it may be moved, rotated, inverted, mirror-imaged or sized with simple key strokes. Text may be overlaid over graphics or vice versa. A series of borders is available for easy framing of your masterpiece and fancy effects are easy to produce. So far so good, Fontasy sounds like many of the graphics packages about the market place *but that's just for starters.*

Unlike other programs in the price range, Fontasy allows an extraordinary amount of control over your page layout. After entering text or graphics you can preview the finished layout by pressing F1. (Remember, you can't see the whole page on screen while entering it.) F1 calls up a Status screen which displays a reduced picture of the overall screen, surrounded by a complete description of the parameters in current use (see Figure 2.) A series of print time instructions may be added before committing your masterpiece to paper. The whole image may be magnified by simply typing in a magnification factor and the density of the print may be varied by switching to double strike with the command .DA ON.

As with so many graphics programs, Fontasy is memory hungry. The amount of work space is relative to your available memory and I found that even with 640 Kbyte of available RAM, I had to leave out many of my normally memory resident programs to maximise the page size I needed to work on. Fontasy has an automatic undo function which stores the page you are working on after certain keystrokes or alterations. F2 after a mistake takes you back to one of these automatic saving points and you can force a save with Alt-F2. Curtailing the undo feature offers a trade off of more page space available for less error correction.

A very clever feature of the program is its ability to let you design templates for filling with text from your word processor. Figure 1 was simply pumped into such a template with the text automatically wrapping itself around the space left for my artistic efforts. The distribution disk has a series of basic templates available and instructions for setting up your own are in the section of the manual for advanced users. Any page you save with the .SA command is treated as a template, even if you don't use it for that purpose.

There are two parts to the template: the almost blank page and specifications for the margins. You design the almost blank page by placing illustrations, boxes and lines where you need them. You may add a masthead at the top of the page and vertical lines separating the columns if you want them. If you need to place text inside a closed box, it should be added after composition as Fontasy will automatically 'flow' the text around such a box. After basic layout you press Alt-T and the template menu will appear.

Figure 1 was printed with these templates and shown 'warts and all'. There was no editing done after the ASCII file was read by Fontasy and some of the shortcomings are apparent. Line justification has forced some pretty ordinary looking lines into the page by spreading words too far apart and some paragraphs could be better placed on the page. Familiarity with Fontasy would eliminate many of the little problems as you type your ASCII file but even after the page is composed, it is a simple matter to jump into the layout and tidy it up by moving the offending bits of text about.

By following the menu, you can alter all the parameters required for printing: TM sets the top margin, BM, the bottom, LL the line length in tenths of an inch (when will the Yanks go metric?) The number of columns required is set with NC and the space between the columns (again in

tenths) is set with SB. The use of VM followed by a value in tenths, decides how far from your template margins the text will be placed. The completed template is saved with a .TEM extension and may be called from your ASCII file while printing. A number of templates may be stored and called as required as you print.

All these commands and key strokes. Surely there must be an easier way? There is — Fontasy supports up to 33 soft keys or macros. Each soft key designation can hold up to 32 keystrokes and may be set at each start-up from the keyboard or filed for automatic usage. Simply type .FN, then the function key number you wish to define or .@x where x is the alpha key you wish to define. Then type a normal dot command and press enter. Thereafter, use of the control key and your predefined key will type the whole instruction. Fontasy recognises soft keys programmed with such software as Prokey but warns that it honours Prokey first and some instructions already in use might clash with Fontasy's needs.

Dot commands may be added to each other for many fancy effects. A large banner may be produced from a single line message by picking up the line of text (block move), rotating it 90 degrees then giving a print instruction such as .PR 10,5. As you've guessed, the .PR turns on the printer, but the additional 10,5 instructs it to print 10 times wider than normal and five times longer. Your simple single line now becomes a banner.

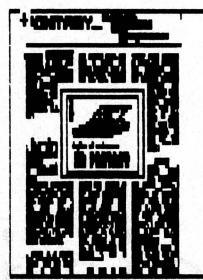
ClipArt

Fontasy comes with some ClipArt picture files and you may buy or add more later. These files may be previewed and can contain up to 100 pictures. During preview, any picture may be selected and carried back to your work for insertion and, if required, further editing. Drawing or editing such pieces of artwork is as easy with Fontasy as with any other graphics program. The width and height of the drawing cursor may be altered at will. A mouse is by far the easiest way to handle free hand graphics but the option of making very fine cursor movements from the keyboard enhances the program functionality.

There is a cute little side benefit of Fantasy — You are able to define the size of your printed page during set-up, and if you define it to the same size as your screen will handle, you will find that with 640 Kbyte you have enough memory to store up to 25 pages. These pages may be called in any order from an ASCII file with

STATUS (press Alt F1 for HELP)

Current Font:	STD.FY
Line Height:	6
Char Spacing:	2
Magnify by:	1
Left Margin:	0
Line Length:	80
Current Page:	1 of 2
Swap with page:	2
Printer ID:	EP.80.11.2.0.1
Current File:	C:\FY\FONTASY.PGE



Kerning:	ON	# of Copies:	1
Word Wrap:	ON	Adjust:	0,0
Justify:	OFF	Aspect Ratio:	12,5
Mouse:	ON	Space Width:	5
Bold Face:	OFF	Scroll Step:	8,4
Dark Print:	OFF		

CURRENT CURSOR POSITION

SCREEN: 8 dot columns from left, 8 dot rows from top
PAGE: 8 dots (.0 inches) from left, 8 dots (.0 inches) from top
SPACE: 959 dots (8.0 inches) from right, 647 dots (8.9 inches) from bottom
TEXT: 68 more letters may fit on line, 46 more lines may fit on page
(press any key)

Figure 2. A screen dump of Fontasy's status page invoked with F1, showing the layout of a completed page with full summary of existing settings.

the simple instruction: .PG1, .PG3, .PG7 and so on. There is an additional command called .WA (n) which causes the program to wait for (n). N is of course relative to the speed of your computer but on a standard IBM PC, .WA 4000 will pause for about 6 seconds. .WA without a parameter will pause until any key is struck. *Great!* I hear you cry: but what does it all mean? Simply that Fontasy can now be used as a slide show with up to 25 slides in memory and as many as you can stuff onto a disk as back-up. Without the wait command, Fontasy will put about 4 to 5 'frames' per second onto your screen. Quite a fair approximation of animation.

The toolkit disk which is an optional extra, allows the modification of existing lettersets or fonts plus the ability to design your own. The program called LDS.COM is the Letter Design System. It reads, writes and generates fonts in the format that Fontasy expects to find them. The required width and height of your new font are allotted and an existing letterset may be copied into the workspace for modification. All the parameters for the new font must be typed in, such as the spacing between characters, the line height or space under the letter before the next line starts, the highest letter or symbol from the keyboard you intend using and the lowest. An existing letterset may

be magnified and then 'smoothed' as a printout of a small letterset with the magnifying option on at the printer resulting in some pretty chunky letters. A totally new design may be drawn on screen with the cursor keys. This facility of Fontasy is fairly complex but very well covered in the manual with clear, step by step instructions and descriptions of exactly what results you should be getting.

Every time I pick up the manual for Fontasy, I find another feature I didn't know existed. There is no doubt that Fontasy represents fantastic value at the price and leaves many far more expensive packages for dead. I don't suggest that it should be purchased tomorrow and your copy of Ventura be discarded, but I am sure it could be used in conjunction with such programs and certainly suffice for many applications where the cost of more expensive software is not justified. □

Product Details

Product: Fontasy
From: Prosoft, California USA
Distributor: Business Planning and
Associates, 6 Gilroy Way,
Lesmurdie 6076 WA
(09) 291 7472
Price: \$150 untaxed

Magic in your machine

The Magician upstages itself

Ewart Stronach thought the original version of this integrated graphics package was a winner — now it's half the price and includes a host of enhancements!

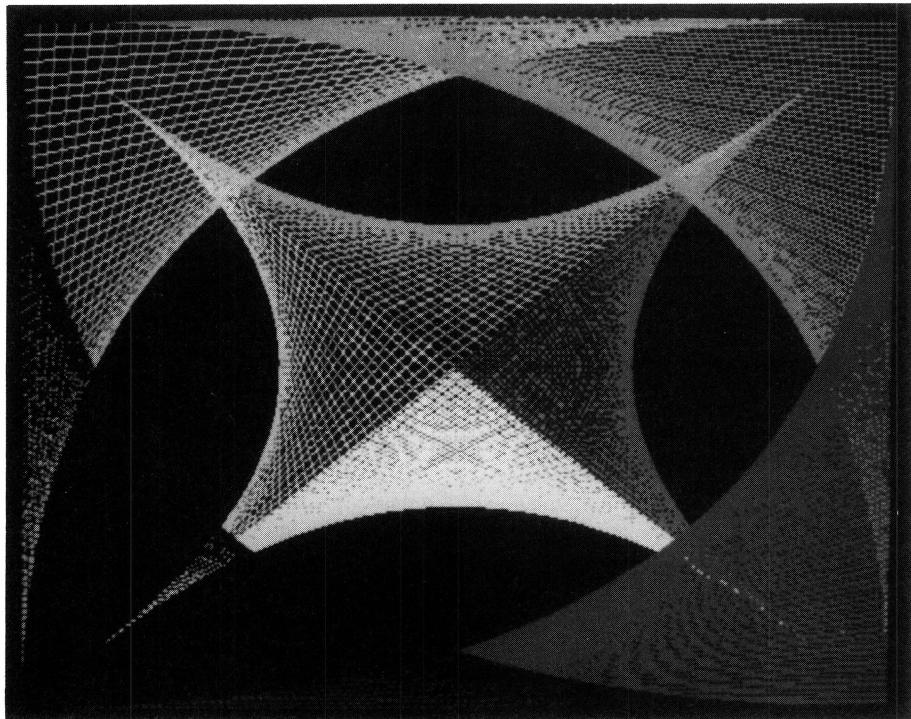


Figure 1. A sample of the Magician's graphics capabilities produced using eight commands.

CAST YOUR MIND back, Dear Reader, to September 1986. Better still, rush to your library and pull out your copy of that issue of *Your Computer* and read what I had to say about a software package released that month by Dennis Redman called Magician.

Back then, with the program in its infancy, I sensed a winner and time has proved my intuition right. Recently Sourceware sent me Revision 3 of this marvellous program. Most of the criticisms I was able to level at the earlier release are far behind it now, and more bells and whistles than you could imagine have been added.

The program is selling very well, both here and overseas, so Sourceware's faith in locally written software is well and truly vindicated. At a recent presentation in Melbourne, The Magician was awarded the *Australian Graphics Software of the Year* award and a Japanese hardware supplier is negotiating to bundle the package with his computer.

To recap on the package, The Magician is an integrated graphics package. It combines an excellent on screen graphics drawing ability with a series of features which would stand alone in the software world. Its ability to produce high quality graphs from data prepared by a number of methods, combined with superb drawing facilities from either the keyboard, mouse or digitiser make it comparable with the combined talents of many programs individually much more expensive than the Magician.

The package is now brilliantly presented in an attractive slip cover containing a substantial three ring binder with clear documentation. There are two disks; the program runs best from a hard disk with an Enhanced Graphics Adaptor. Colour graphics cards will run the program but, in a contradiction in terms, display only monochrome. Hercules cards are not supported.

The Magician was originally written so as to be so 'User Friendly' that documentation was unnecessary. Help files on screen were extensive and using the 'point and click' command style, very little documentation was required. My original sug-

gestion was that minimal documentation was an absolute necessity, as many potential users would not be familiar with even basic DOS commands. The wheel has turned full circle and the onscreen help files diminished significantly and a comprehensive, clear manual is now provided. At the same time, the software protection has all but been removed and only a user number is required to operate the program.

The screen in Figure 1 shows the main options across the top. The leftmost option is ARC and clicking on this option allows the drawing of a uniform arc on screen by dragging the cursor between the desired points. The next option is box followed by the circle option, which behaves exactly as you would expect with the bonus of automatic return to the centre of the circle for easy concentrics.

The next option is Clr for clearing the screen and two clicks are required here to minimise disasters. Jumping across a couple of commands I will return to later, there are Text, Fill and Line options for use in the drawing mode, together with an Undo function.

There is an option marked Edit. Edit what? Here's where the Magician really struts its stuff. While in the drawing mode, a function called Log may be turned on. When Log is invoked, the Magician writes a macro, like a mini program, of every instruction you give it. A movement of the mouse produces a line of plain text saying; Line, 100/5,50/12. These are the X, Y co-ordinates of the line you have just drawn and are automatically produced as part of the macro. Subsequent editing of this macro, either in the editing mode or with a word processor, can totally revamp your original drawing. These macros form an Obey file which may be called up in any sequence. The Obey files are recursive and one obey file may call another. Cute stuff

There is another option marked Graph. Clicking onto Graph then File, will produce a list of any graphs currently on the disk. The graphs are filed as numeric data only and drawn in a variety of styles as needed. One of the major advantages of Revision 3 is its ability to import and export any file produced under Microsoft Windows allowing it to integrate with the PageMaker.

The data for the graphs is input to a spreadsheet style formula of up to 8 columns by 512 rows and may be entered from the keyboard straight into the spreadsheet or imported from Lotus style PIF files. Once the file exists, it is called up from the menu and by use of the options

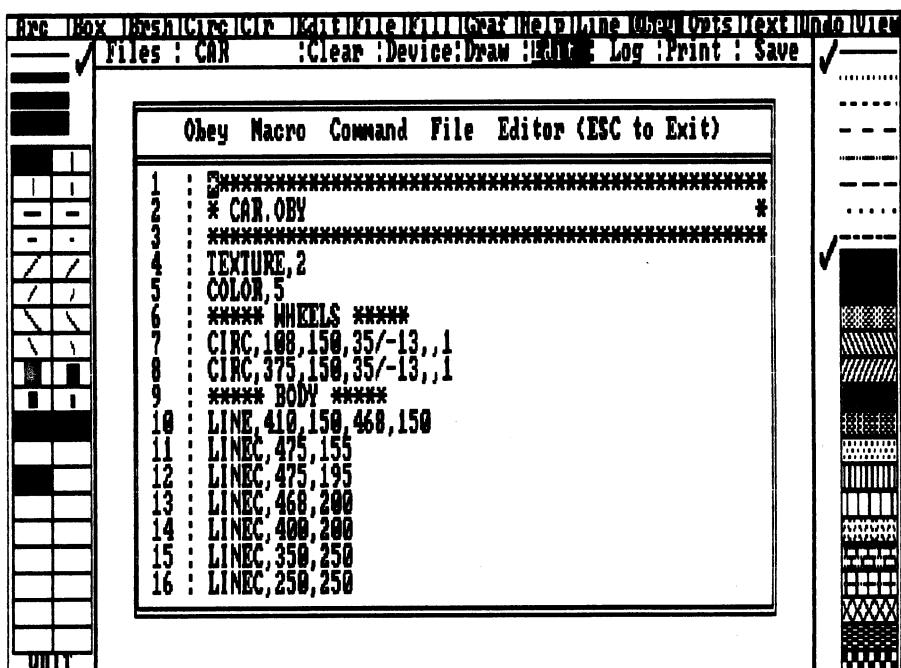


Figure 2. The Magician fires up on screen like a number of similar programs such as PC/Paint and Apple's MacPaint. The screen is bordered with a top row of options (discussed in the text) and two side rows of tools or colours. This particular screen shows Macro Edit Mode — the macro will draw a car with a single keystroke.

box, your choice of graph is drawn straight onto the screen. The choice is wide and remarkable. Outstanding graphs, complex enough to fool the most discerning General Manager can be produced in seconds. These graphs may be saved as a picture file for printout.

The printer range supported is immense and includes a full range of plotters, dot matrix and laser printers. An additional bonus from the graphs section is the totally automatic calculation and display of a full set of statistics from your graph. At the touch of a button, minimum, maximum, sum, mean, variance and standard deviation are calculated and displayed as a table.

The graph may be altered in two ways, either by re-entering the data in edit mode or changing parameters from the options screen. The graph options screen shows the style of graphs available; Points, Line, Bar, Straight bar, 100 per cent, Horizontal bar, Area and Pie Chart. The legend may be placed either on the bottom or right of your graph, a three dimensional representation given to graphs which can use it and a reference grid placed over them. The parameters of the graph may be changed with both the X and Y axes altered before printing. Different styles of the finished

graph can be drawn quarter-sized for deciding the most effective way of presenting the information — see Figure 2.

All this adds up to a pretty powerful business presentation in its own right without the additional power of the package. There is provision for any saved screen to be displayed as a slide show and with the available range of text styles, a very presentable graphics display can be attained. If you don't happen to like the text styles available, there is even provision for editing existing styles or designing your own font completely. This enables you to display unusual symbols or maths formulae not found in any normal font.

Magician a CAD!

By use of the inbuilt programming language, complex plan or cartography applications are available. The co-ordinates displayed while the log function is operating are 'virtual' co-ordinates and may be based far off the screen as an invisible reference point. Once the drawing is done and the macro written by this log function, the resulting program may be altered by changing the text of the macro either in the macro editor or with your word processor.

Five additional verbs are available in Revision 3: Rotate, which allows rotation by any angle in degrees; Pie, which draws the pie chart slices; Fontsize, which allows you to magnify any font; Stop, which halts operation and may be used for debugging a macro; and Goto, which allows continuous running macro presentations.

The range of input devices has been vastly increased in Revision 3 which now supports the full range of Summagraphics digitisers and tablets with both cursor and stylus. All major mouse systems are supported.

A little function, I believe can be offered as a standalone feature is the ability to change the sensitivity of your mouse through a wide range. Mice differ in their 'Mickey Ratio' — the ratio between the amount of movement of the mouse related to the number of pixels covered on-screen. Too high a ratio and you can't draw fine pictures; too low and you need a 40 hectare field to move the mouse about in. The mouse also automatically senses the speed at which it is being moved and a sudden fast movement results in a much higher Mickey ratio. This means that a

short, fast movement of the mouse results in the cursor leaping right across the page while a slow deliberate movement results in a steady progression.

Multiplying Peripherals

The range of output devices has also been enlarged with full support for a range of plotters including the Hewlett Packard range of multi-pen colour plotters and the Gould Colorwriter series. Vector based laser printers like the Epson QO-3500 are catered for and the Magician can produce a full size graphic image on a standard 64K HP Laserjet. It is claimed that the Magician is the only software package with this capability and moreover, this process takes less than 30 seconds running on a standard PC/XT. There are 25 raster output devices, dot matrix and laser printers supported and six vector output devices, plotters catered for.

The new version is also up to 500 per cent faster than the previous version with any 16 of 64 colours available for EGA or VGA systems. Revision 3 is available on 5½ inch disks or 3½ inch and is fully compatible with all PC/XT/AT type devices as

well as the IBM PS/2 range. Minimum requirement is 512K for CGA or 640K for EGA or VGA.

The disk comes with a series of demonstration macros already written and smart operators could steal (with the full approval of the publisher) complete maps of Europe, Australia and the US, already divided up into states, which may be included in composite business graphic presentations.

To cap it all off, the price has tumbled. The Magician was originally designed to sell at \$985 but economies of scale mean the Magician can now be yours for less than \$500. I said it last September and I'll say it again, *well done Mr Redman.*

Product Details

Product: Magician Integrated Graphics Software

Distributed by: Sourceware, 586 Pacific Highway, Crows Nest 2067 NSW.

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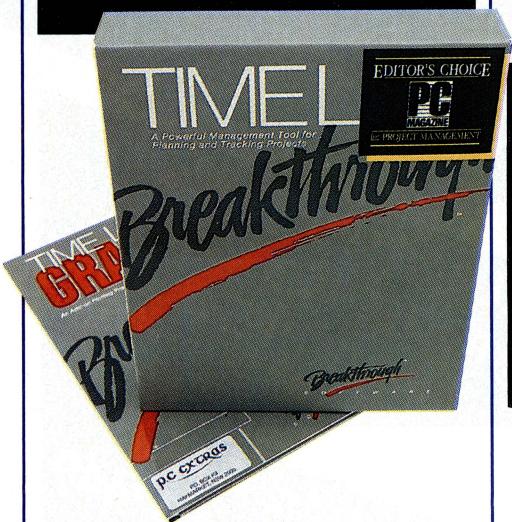
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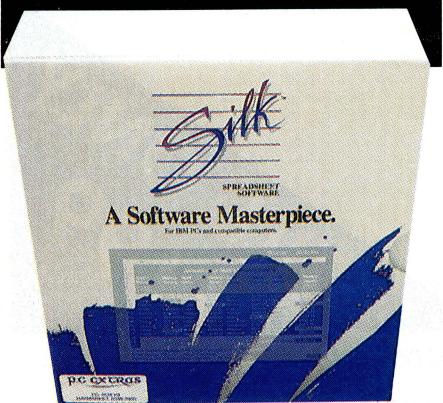


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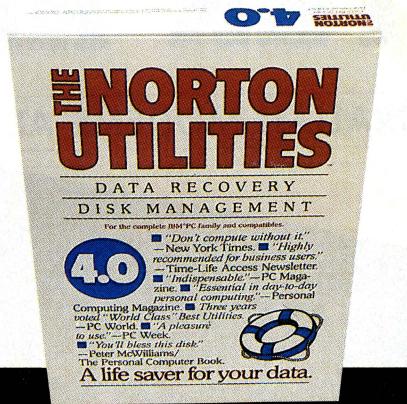
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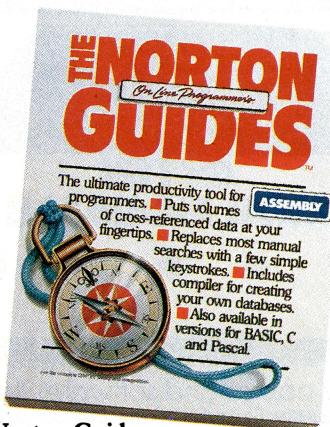
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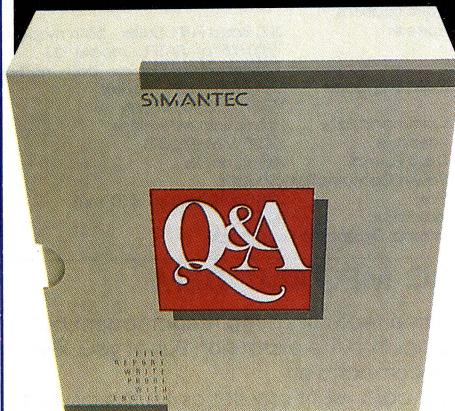
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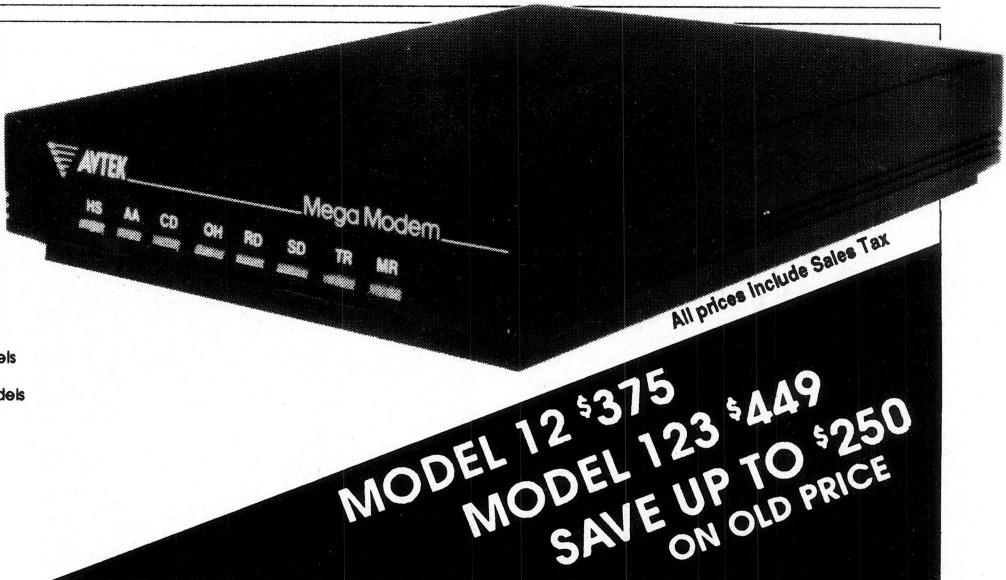
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Command Set	Hayes with extensions
Interface	CCITT V24 (RS232)
Data Format	Asynchronous
Power Consumption	<2 watts
Size	27(H) x 120(W) x 157(D)mm
Indicators	8 LEDs
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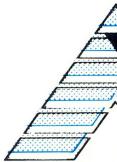
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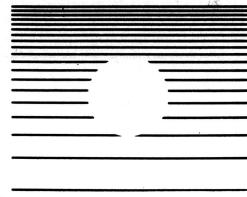
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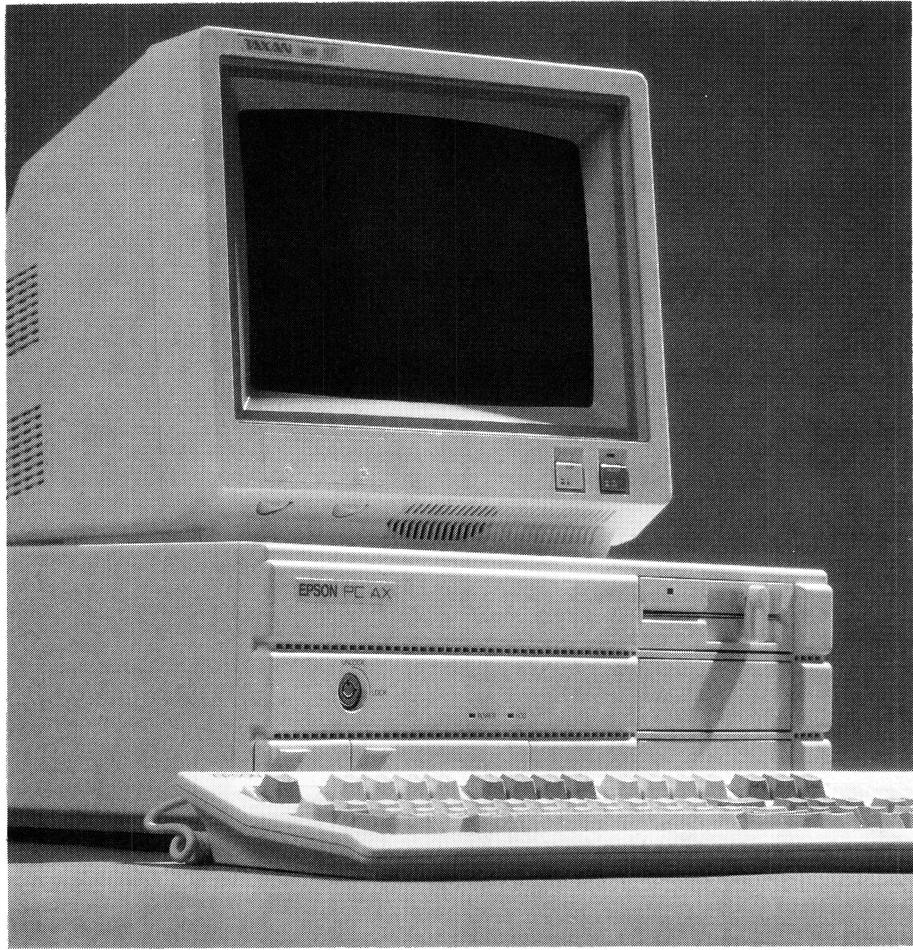
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The Epson PC AX

Epson has been quietly building a reputation for solid, reliable PCs with a 'bit' extra — Brian Webster reports on its latest offering.

THE EPSON PC AX has the crisp, clean look that should be associated with one of the most reputable names in the printer business. Obviously a lot of thought has been put into the look of the AX; this same approach can be seen in details such as locating the keyboard plug in the front left corner of the computer and the snug fitting cover over the CPU speed and monitor selector switches on the front panel. The overall impression is that of a machine that means business, and that's exactly the market Epson are aiming for.

Speaking of business, the AX has an enhanced AT style keyboard, with separate cursor keys and 12 function keys. It has indicators for Numbers Lock, Capitals Lock, and Scroll Lock. The keys have a solid feel and the angle of layout is nicely curved up at the back so all the function keys can be clearly seen and easily reached. The cable plugs into the front of the computer, but, for some reason, it goes from the right of the keyboard to the left of the computer, which cuts down on manoeuvrability. There is a keyboard lock on the front panel. The monitor supplied is a Taxan



A DOS HELP command gives a useful summary of each command.

Super Vision III, a 14 inch colour unit which can display up to 2000 characters (640 x 350).

The Setting Up and Getting Started manual is well written and illustrated, although the machine supplied was not identical to the documentation. For example, five screws were holding the computer cover on and not four as stated — this was the source of some frustration, especially as I am used to one which has two push buttons and a hinged cover. The Diagnostics User's Guide covers thoroughly the setting up procedures and diagnostics which test the computer, the memory, the printer, the disk drives, monitor and anything else you have installed.

Epson has added several of its own routines to DOS to make it more user friendly. The DU (Disk Utility) program plus SET-MODE, make standard disk formatting, checking and printer set up menu driven. The DIAGSYS is very useful to check if the system is working, and the monitor tests are quite useful to adjust the color and brightness. A DOS HELP command gives a useful summary of each command.

The maintenance of the computer should be straight forward as the disk drives are all held on with a couple of screws and a metal guide, which are easily removed. The hard disk is mounted vertically inside and the standard 1.2 megabyte floppy is mounted horizontally. Another two horizontal slots are unused; these could be used for another hard drive, or a 360 kilobyte floppy drive or an additional 1.2 Mbyte floppy (all half-height, of course).

There's plenty of room for expansion — the PC AX has a total of nine slots, three 8-bit and six 16-bit. The socket for the 80287 co-processor is clearly seen on the main board, and can easily be installed. However, there is only one parallel and one serial port.

The CMOS RAM battery is easy to remove from the main board, simply by undoing two plastic straps. The battery wire has a small connector wired to the battery, this would have to be resoldered or bought as a complete replacement (Epson quote the battery life as five years). The fan is a Panaflow DC brushless, which makes a moderate amount of noise.

The power unit is separate at the back of the computer box, and the expansion connectors are easy to plug into lying in the bottom of the left back of the computer box, along with removable metal panels to add any extra connectors. The

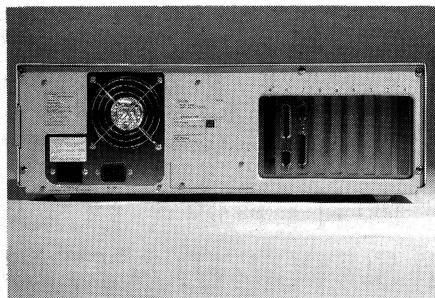


Figure 1. There's plenty of room for expansion — the Epson PC AX has a total of nine slots, three 8-bit and six 16-bit. However, only single parallel and serial ports are fitted to the standard unit.

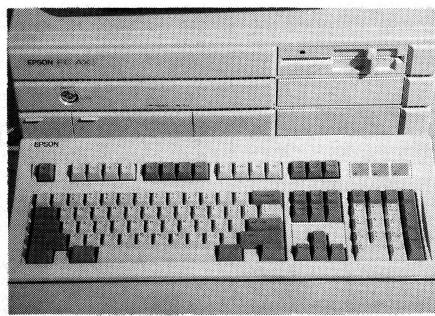


Figure 2. The enhanced AT style keyboard has a solid, easy to use feel about it. Note the two blanked slots under the floppy drive — there's room for three more half-height units.

Quick Sieve

FOR MY OWN information, I also tested the speed of the Epson PC AX with this Quick Basic Program (which is a variation of the well known Sieve of Eratosthenes; you may find it useful for your own comparisons).

```
'Integer numbers benchmark test
'to discover the first 1000 prime numbers
'
Print Chr$(12)
Print "Starting ";TIME$
For n% = 1% to 1000%
    Found$ = "false"
    factor% = 2%
    While factor% <= Int(sqr(n%)+1) AND Found$ = "false"
        Remainder% = (n% MOD factor%)
        If Remainder% = 0% Then
            Found$ = "true"
        Else factor% = % + 1
        End If
    WEnd
    If Found$ = "false" Then
        Print n%
    End If
Next n%
Print "Finishing ";TIME$
End
```

I recorded 25 seconds for an IBM compatible XT, and 22 sec for the XT in Turbo mode; the AX gave 9 sec with the speed set to 6 MHz, 6 at 8 MHz, and 4 to 5 sec at 10 MHz - all of which bodes well for massive sorters and spreadsheet recalculators.

I/O and the disk controller boards are already plugged into this bus.

Compatibility was no problem — I used Quick Basic, Norton's Utilities, a graphics package, Smartwork, Chuck Yeager's Advanced Flight Simulator, and several games. The programs were working extremely fast, and the processor had to be turned down to 6 MHz to enable mere humans to play.

As a performance guide, I used the Norton's Sysinfo which gave a computing index of 9.8 for 10 MHz, 5.9 for 8 MHz, and 7.7 for 6 MHz (which shows the AX is a reasonably fast computer); the Disk Index came up at 2.7 (pretty standard for the Miniscribe); the Performance (overall) Index was computed at 7.4 - overall, not superfast for an AT, but there's certainly enough punch to keep immense spreadsheet recalculations from becoming too time consuming.

A HDSIT program is supplied to park the hard disk for switch off or computer movement. I must mention that radio and television interference is noticeable up to 10 meters with this unit, which could be major problem if that equipment also has to operate close by. A volume control is supplied for the speaker.

I struck a problem we are all becoming familiar with — I wanted to copy files using the 1.2 MByte drive on to a 360 KByte disk for use on a 360 KByte drive (the manual recommends you install a 360 KByte drive if you want to do this) and couldn't. This appears to be a problem on a number of ATs (I am unsure of the reason), however be warned as the error only occurs 'sometimes'.

In no way is the Epson PC AX meant to compete with the 'cheapies' — if you're looking for compatible reliability backed up by an international 'big name', the Epson AX is well worth considering (and there shouldn't be many printer compatibility problems either). □

Product Details

Product: Epson PC AX

From: Epson Australia,
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G3: ANTONYMS*. Word game that challenges you to find the opposite of nominated words. Source provided.

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G25: DRAIN. Joke program which causes computer to pretend it's awash and needs to drain.

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G35: FOOTBALL*. Tactical play in a footy simulation.

G36: FORTUNE. Wheel of Fortune. Spin the wheel and win prizes or be penalised. More than one can play.

G37: FROG. Frog tries to cross road to safety and avoid being splattered by traffic.

G38: FUN*. Fun with numbers. It helps to understand a little algebra to solve the problems.

G39: GEOGRAPHY. Educational game that tests you on cities, capitals, countries, etc.

G40: PC-GOLF. Very well presented. Takes into account handicaps, clubs, swing, choice of 3 courses.

G41: GRIME. Hi-res fight against those nasty grimes that threaten to attack and overwhelm.

G42: HANGMAN*. Correctly spell the mystery word before the computer hangs your image.

G43: HANOI*. Transfer disks from one pile to another. Requires thought.

G44: HOBBIT*. Adventure. Hobbit thief tries to steal from the Wizard's castle.

G45: HORNADETTE. Adventure. Invading the Castle and find the secret formula.

G46: IBMADV. Adventure. Government agent infiltrates IBM headquarters.

G47: IQUEEN*. Board game based on chess and using only queens.

G48: JUMPJOE. Mad robots chase Joe through rooms and past obstacles on space station.

G49: KONG. Climb the structure against falling objects and other dangers.

G50: LANDER*. Try to land a spacecraft against gravity, adjusting rocket thrust. Good sound and graphics.

G51: LANDMINE. The enemy has buried mines and you have to reach headquarters — preferably intact.

G52: LIFE2. Enter details of bacteria colonies and they breed, generating patterns of the screen.

G53: LOCUST. Spreadsheet setting. Kill the numbers, zero a column to win. They keep growing!

G54: MARS ESCAPE*. Adventure. Your mission is to escape from Mars.

G55: MAZE1. Mazes with different degrees of difficulty. Good graphics.

G56: METEOR*. Erase solid blocks before the constantly falling meteors hit you.

G57: MEMBRANE*. Chemistry game. You are a cell membrane. Learn about cell behaviour.

G58: MUSICIAN. Compose songs, music. Helps you to compose on the screen and play back.

G59: OIL. Offshore Drilling Simulation. Organise resources to strike oil or go broke.

G60: PACMAN. Classic where you are in a maze hunting treasure while the monsters hunt you. Different levels of play.

G61: PANGO. Attempts to clear bees in a field by stunning or squashing with blocks.

G62: PARATROOPER. Fight off the paratroopers who keep landing until they can overwhelm.

G63: PINBALL. Good screen effects let you play this arcade type game with the cursor keys.

G64: PIRATE*. Adventure set on a pirate ship.

G65: PITFALL. Fast moving flight through valley or pit. Good screen effects. Needs fast reflexes to avoid walls and other dangers.

G66: POKER. Card game. several can play or just you against the computer.

G67: POKER MACHINE. (ONE ARMED BANDIT). Try to line up the reels for your win.

G68: POLYMAZE. Computer generates hexagonal mazes and will demonstrate how to solve them.

G69: PRESH*. Spelling and number game for small children.

PROVOCATION PINUPS: These are intended for printing. Hang alongside last month's sales figures (or whatever).

G70: CALENDAR GIRL.

G71: JEZABEL.

G72: DAWN.

G73: DELILAH.

PROVOCATIVE SCREEN PICS: These are animated screen pictures.

G74: RECLINING NUDE.

G75: STRIP.

G76: PYRAMID. Fast moving game where you step onto cubes to avoid bouncing rocks and creatures.

G77: QBERT. Bert & the Snake. Jump from one title to another pursued by the snake and falling fruit.

G78: RACECAR*. You race the computer on racetrack controlling speed, braking, etc.

G79: RAIN. Challenging pinball game that has very good graphics and cursor control.

G80: ROCKETS. Fascinating, fast, hi-res game of space battle.

G81: ROULETTE. Gambling simulation using screen version of a roulette wheel. Cheaper than going to a real casino.

G82: SCATTER. Logic puzzle. Fire a laser to determine whereabouts of 10 atoms in a box.

G83: SEAWOLF*. Valiant submarine commander attempts to sink the invasion fleet with his torpedoes.

G84: SECRET ADVENTURE*. Create your own adventure. For small children. Answer questions about rooms and monsters and it generates a game for you.

G85: SKYTREK. Comprehensive strategy game of the Star Trek type.

G86: SOLITARE. Card game that shows you draw and you work out where to place each card.

G87: SPACEWARS. Nicely presented Star Wars type of game with many factors to consider.

G88: SPACEVADERS. Race across the screen shooting them down. Good graphics.

G89: STARLANE*. Interstellar Trading. Space Monopoly where you try to build an empire.

G90: STOCKMARKET. Simulation game where you try to amass your fortune in stocks and shares.

G91: SQUARE*. Like Tic Tac Toe but more combinations with dots on larger board.

G92: SUBCHASE. You're in a destroyer on patrol trying to destroy subs swarming below.

G93: SWARMS*. Attack of the killer bees! BeeWars?

G94: TANK*. Two tank commanders slug it out.

G95: TRADE*. Star trading by intergalactic merchant. The ultimate travelling salesman.

G96: WIZARD*. Adventure in the Wizard's castle against monsters, elves, hobbits, dwarf, etc.

G97: WOMBAT*. Generates questions for mental arithmetic. Suits primary children.

G98: WEATHER*. Answer questions about conditions of last two days and it will attempt to forecast tomorrow's weather.

G99: XWING. Very good version of star-wars-type game where you are pitted against Darth Vader and the Death Star space station.

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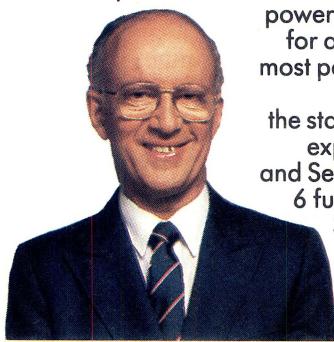
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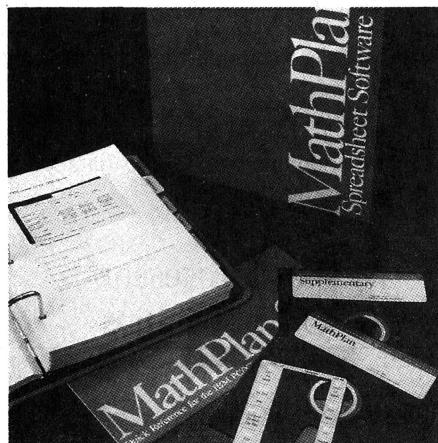
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Balance Series

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76 McLachlan St,
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The product range is split into three categories: Balance Series, Manager Series,

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55 Blaxland Rd,
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MicroAustralia are the umbrella distribution company for Digital Research and their range of GEM products, Migent with their In-House Accountant and Ability Plus integrated packages, and Computer Associates with such projects as Super-Project Plus, Supercalc4 and a range of accounting packages.

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Phone: (07) 252 5267

Price: See Below

The Designer Series includes: Database Systems Builder \$366, Report Builder \$251, and Impex \$251. The System Builder writes the program and creates a relational database automatically. Report Writer generates the report program automatically from the user's criteria of what should be contained in the report and how it should be formatted.

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Custom Made Software

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BUSINESS SOFTWARE

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5 Alexander St,
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Price: Micro \$2994, Graphics
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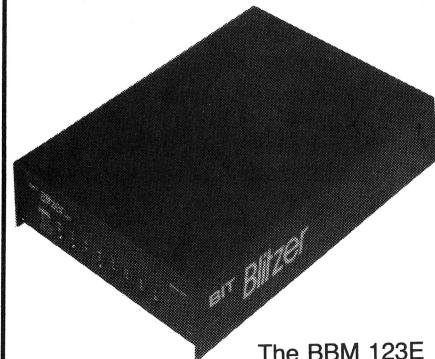
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Home is the office!

Working from home using a computer is a relatively new practice. Paul Walsh, Paul Keogh and Jack Wood, all from the University of Newcastle, are currently researching the topic . . .

AUSTRALIA'S transition to a post industrial society has heralded an unprecedented growth in information workers: those who collect, manufacture, process or disseminate information. They are white collar workers whose job descriptions range from the clerical and managerial to the data processing professional.

This year approximately 40 per cent of the Australian workforce is employed in the Information Sector of the economy. Many Australians however have little understanding or awareness of the rapid growth within this sector.

This is clearly illustrated by a recent comment by Barry Jones writing for the Commission of the Future where he suggests that most Australians do not believe that more of our workforce are engaged in information processing than in the combined sectors of farming, mining, manufacturing and construction⁽¹⁾.

Many jobs performed by these information workers are conducive to telecommuting, or teleworking, terms which suggest the remote use of personal computers (or terminals), usually from the employee's home. PCs are used to tap into

mainframes over the existing telephone network and may download or upload to the corporate database. Recent developments in PC to PC communications have enabled small businesses who can't justify the larger machines to still practice telecommuting.

Equipment needs are simple — a modem and telephone, a PC, some cabling and communications software. Many of us who work at home on PCs preparing budgets on Lotus or creating reports on our favourite word processor but do not electronically access host computers, still qualify as teleworkers. We have rejected the traditional view that work and home are separate and should remain that way, preferring instead to cloud the home/work interface.

Working from home with a PC is an innovative work practice and is not without



its critics. In this article we explore the advantages and concerns of the employee and employer; the types of jobs and employees that may be suitable for telecommuting; and what effects telecommuting may have on the fabric of Australian society. There is a lack of Australian research on telecommuting and we look to the US experience where it is estimated that by 1990 10 million workers will be practising some form of telecommuting⁽²⁾.

Advantages for the Employee

The most obvious advantages are the time and money saved by not commuting each day. Although few employees work from home on a full-time basis, the savings can be considerable and equate to reduced transportation costs and increased leisure time. Plus, employees are

given the opportunity of living farther away from their workplaces where housing costs may be cheaper and the lifestyle more attractive.

Those who telecommute are often more productive because less interruptions may be present in a home environment. Shamir and Solomon⁽³⁾ suggest that their quality of worklife is improved because office-induced stress is reduced. Protagonists also argue that teleworkers have happier family lives because they can mix work and family responsibilities more easily than the office bound worker. Further more, some telecommuters feel they are privileged employees having been granted the right to choose their place of work. Improvements in morale and productivity follow.

A survey by Olsen⁽⁴⁾ indicated that US computer professionals who telecommute are primarily working their overtime hours at home instead of at their offices. Most respondents cited the main reason for working at home was to increase personal productivity although there was a tendency to work too many hours. Fifty percent of respondents had established an office at home and felt they could work relatively free from distraction in the household.

Employee Concerns

Establishing the electronic cottage and working from home even on a part-time basis can have several drawbacks. First there are problems of office logistics and associated costs. We take for granted facilities such as the photocopier, microfiche, the fax and correspondence files. Should these need to be present in the home environment, teleworking may not be viable.

Secondly, working from home may lead to a feeling of isolation. Naisbitt⁽⁵⁾ in his famous book *Megatrends*, argues that 'hi-tech need hi-touch' and believes that the

majority of employees have an innate desire for regular face-to-face contact. Furthermore, some employees need exposure to corporate culture. By walking through the office doors each morning they feel a sense of belonging to the organisation.

Finally, it is argued that teleworkers cannot be effective team members. In addition, some employees feel that if they are not at the scene when decisions are required their chances of promotion are reduced. There is also the concern that the continued reduction in telecommunication costs may encourage companies to seek cheap offshore telecommuting labour. The concern in the long term is that information-based work may follow the example of manufacturing work and be performed where resources are the least expensive.

The Employer's View

Employers have mixed reactions to managing remote workers. Some feel telecommuting should be seen as a reward for loyal and trusted employees, claiming that it is difficult to measure the output of a teleworker.



If the opportunity to telecommute is seen as an employee benefit for the select few, some argue that discontent will arise amongst those not selected. There may be problems of security if access to corporate data is allowed. Opponents argue that teleworking, because of the lack of direct control, can lead to employees 'moonlighting'. As a result employee loyalty can wane if teleworkers are left to their own devices.

On the positive side many employers believe that efficiency and productivity can only be improved if flexible work practices and autonomy are encouraged. Many employees, by using electronic mail, find it easier to maintain close contact with customers and colleagues. There are major cost savings in office overheads particularly in providing parking space in inner-city areas and in air-conditioning, office furniture and lighting.

Foegen¹⁶¹ raises the issue of employee benefits and stresses a proactive approach. He states that telecommuters have different needs to part-time or full-time employees and at this stage an industry standard package of benefits particularly with respect to insurance is yet to be developed. He argues that be-

cause society encourages dual careers which result

He argues that because society encourages dual careers which result in greater family affluence, shared jobs and part-time employment will become increasingly popular. These work patterns may reduce the complications of providing acceptable childcare. Telecommuting offers a better solution to the future of work than more traditional job patterns.

Job and Employee Suitability

Not every information-based job is a candidate for teleworking. Olson¹⁷ reported that several job characteristics often found in clerical, professional and managerial jobs must be present.

First the job must require a minimum of space and ancillary equipment. It must have well-defined goals and progress milestones so that work output can be easily monitored. The flow and pace of work should be controlled by the employee and little face-to-face contact with fellow employees or clients is required.

Close supervision of the job is not necessary but long periods of concentration are needed to complete the job. The jobs are not likely to be subject to union regulations. Examples of some telecommuting jobs would be data entry, word processing, journalism, Cad, computer programming, and technical support.

Olson also points out that not every employee is suitable to undertake telecommuting. Those who are, will most likely be volunteers with demonstrable computer skills. They must enjoy working alone and without supervision. Many may have family responsibilities. They must practice well-organised work methods and be trained in project management.

Effects on Society

The growth of cottage industries, in particular teleworking, can have a significant impact on today's society. If, for example, working from home is not addressed by the union movement telecommuting may encourage a return to 'sweatshop' labour conditions and be subjected to many of the criticisms that are currently levelled at contracts with outworkers in the clothing industry.

Critics feel society will become fragmented if human interaction between workmates is not maintained. In addition, if people are encouraged to live farther from their place of work the rate of urban sprawl would probably increase.

Telecommuting will however encourage higher participation rates of disabled per-

sons and young mothers in the workplace. Evidence from the US shows perceived gains in personal productivity. For some the new found freedom of being able to choose your place of work will further enhance their motivation and organisational loyalty. For others telecommuting may simply mean exploitation, workaholism and isolation.

As yet there is little Australian data on the cost-benefits of telecommuting. However some early experiences with telecommuting in other parts of the world are showing promising results as a new way to work for certain employees.

To use one example an experiment at Rank Xerox in London was aimed at setting up staff who wished to work from home as small independent businesses. Since many employees had recently left the company to start their own businesses, the idea was that their loyalty and skills could be retained by encouraging them to enter into contracts with Rank Xerox¹⁸. A network of PCs from homes to offices was provided and strict contracts with clearly defined prices and standards were negotiated. Staff were formally trained in running a small business. The results were very encouraging and the company avoided an expensive move to cheaper accommodation in outer London.

From the evidence it is increasingly clear that if Australian organisations are to compete in the decades ahead then the need for such innovations and research in an Australian context is immediate. □

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Who is Telecommuting?

Survey of experiences with Telecommuting

We are interested in your experiences with telecommuting. Only people who have had experience telecommuting on a full-time or part-time basis should respond to this survey.

There are no right or wrong answers. It's your personal opinion that counts. Space is provided for comment on questions where you feel elaboration is important. As this study is exploratory any additional information you can provide will be greatly appreciated. Your replies are to be anonymous and no individual data will be reported.

1) Please describe your occupation — if more space is needed, attach a separate sheet —

Please indicate your answer to the following questions by circling the appropriate letter

2) How long does it take you to travel to work on a typical day?

- (a) less than 30 mins, (b) 31-60 mins
- (c) 61-90 mins, (d) more than 90 mins.

3) Age

- (a) less than 21, (b) 21-30, (c) 31-40,
- (d) 41-50, (e) more than 50.

4) Marital Status

- (a) Single, (b) Married/De Facto
- (c) Divorced, (d) Other.

5) Gender

- (a) Male, (b) Female.

6) Number of children currently in the household.

- (a) None, (b) 1, (c) 2, (d) 3, (e) more than 3.

7) Gross (family) Income —

- (a) Less than \$20,000, (b) \$20 — \$30,000,
- (c) \$30 — \$40,000, (d) \$40 — \$50,000,
- (e) \$50 — \$60,000, (f) \$60 — \$70,000,
- (g) More than \$70,000.

8) When working from home who is your employer?

- (a) Same as your regular employer,
- (b) A different employer,
- (c) Self-employed.

9) Are the hours you spend working from home —

- (a) Paid Overtime, (b) Unpaid Overtime,
- (c) A substitute for regular work hours,
- (d) All the paid work you do, (e) Other.

10) If you had the choice, with what frequency would you prefer to work at home?

- (a) Not at all, (b) 1 day/week,
- (c) 2 days/week, (d) 3 days/week,
- (e) 4 days/week, (f) full-time.

11) Which room in the house is used most often for work purposes?

- (a) Separate Office/Study, (b) Dining/Living Room, (c) Family/Rumpus Room,

(d) Other (*please specify*)
.....

12) What type of equipment do you use most often at home?

- (a) Personal Computer, (b) Dedicated Word Processor, (c) Terminal,
- (d) Other (*please specify*)
.....

13) Who paid for the equipment you use at home?

- (a) Self, (b) Employer,
- (c) Shared with Employer,
- (d) Other (*please specify*)
.....

Below you are given statements of perceived advantages and disadvantages of telecommuting. Please indicate your agreement or disagreement with each statement by circling the appropriate letter(s).

SD = Strongly Disagree, D = Disagree,
A = Agree, SA = Strongly Agree.

14) My personal productivity has increased since I started working at home.

SD D A SA

15) Employees who work at home have reduced chances of promotion because they are not on scene when decisions are required.

SD D A SA

16) Telecommuting is not a viable work practice because of the lack of key office facilities (e.g. photocopier) in the home.

SD D A SA

17) Employees who work from home have happier family lives because they mix household, leisure and work responsibilities more easily.

SD D A SA

18) Telecommuting should be seen as a privilege and not the right of each individual employee.

SD D A SA

19) Companies will have their status enhanced if they are seen to support the practice of telecommuting.

SD D A SA

20) Data security is not at risk when accessing other computers over the telephone network.

SD D A SA

21) The main reason I telecommute is to earn more money.

SD D A SA

22) Working from home is less stressful than working in an office.

SD D A SA

23) Telecommuting serves only to isolate the employee from workmates.

SD D A SA

24) Supervision is not a problem for telecommuters.

SD D A SA

25) Working from home encourages tax evasion.

SD D A SA

26) Working from home will undermine the growth of Unionism in Australia.

SD D A SA

27) Not being able to discuss work matters face-to-face will be very detrimental to work performance.

SD D A SA

28) Telecommuters are not as loyal to their employers as non-telecommuters.

SD D A SA

29) Organisations should encourage telecommuting to save on office overheads.

SD D A SA

30) Telecommuters are all workaholics.

SD D A SA

31) Telecommuting should be considered an employee benefit like flexi-time.

SD D A SA

32) Wage rates should be lower for telecommuters than non-telecommuters because they save on transport costs.

SD D A SA

33) Telecommuting will not improve job prospects for the disabled.

SD D A SA

34) Management will not agree to telecommuting because it is a difficult work practice to control.

SD D A SA

35) Telecommuting will encourage employees to 'moonlight'.

SD D A SA

36) Office staff who don't telecommute will carry the burden of those that do.

SD D A SA

37) Employees should pay for their own equipment if they wish to telecommute.

SD D A SA

38) A person is less productive working at home than in an office environment.

SD D A SA

39) Telecommuting will mean the collapse of project teams as we know them today.

SD D A SA

40) Telecommuting will be an organisational nightmare in terms of data security.

SD D A SA

41) Choosing your own conditions of work improves personal productivity.

SD D A SA

THANK YOU for taking the time to answer our questions. If you have any other comments to make about the practice of telecommuting, please include them on a separate sheet of paper.

Please Send to:

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HOME EDUCATION

Hardware

To buy or not to buy, that seems forever the question. We don't have the answer, just facts (and a few hints) to help you make up your mind.



CHILDREN AT SCHOOL are more and more likely to be using computers, whether simply to learn about them or to actually use them as a tool for learning traditional subjects. There the buying decisions are left to the professionals.

But what about computers for education at home? Is a simple games machine good enough, or should you buy a more sophisticated machine, one suitable for wordprocessing, data manipulation, and hi-res graphics? We can't answer that question here because that will depend entirely on what *you* expect of the machine — that's the first question you'll have to answer yourself. Take into consideration the age of your children, their education prospects, the likely future use the machine will get, what use you might have for it yourself — and cost.

When that's clear in your mind, you're ready to start shopping (or you've made up your mind you don't need a computer *just yet*). On the following pages we've given a brief description of a selection of computers — each one, in its own way, suitable for 'home education.' This should help you decide, essentially how 'sophisticated' a system meets your needs and resources. (Just a word of warning: Don't overspend - first, because there'll be no money left to buy all the software you'll find you want; and second, if you're worried about the next payment, that takes half the fun away).

Once you have an idea of what you want, ask friends and work colleagues about their experiences when buying a computer; computer companies spend a fortune on glossy brochures — collect

Figure 1. The Apple IIe, first released in January 1983, has been so well supported over the years that it is still one of the most popular computers for home and school use.

them. When you can draw up a detailed list of your needs — not necessarily brand specific — you're ready to really go shopping (for example; how much RAM will you need?).

After that, shopping for a computer is the same as shopping for any other household 'appliance' — shop around, try it, don't make up your mind on the spot, don't deviate lightly from your list and make sure you know exactly how much you'll be asked to pay for what. Since computers are still in an 'interesting' stage of development: ask to see the exact configuration (printer and all) you've agreed to buy, actually work. □

Apple

ASK AT YOUR school and you will probably find that the teachers have collected information from a number of computer companies and invariably from Apple. Apple has discovered the potential of the education market: its marketing department maintains that for every machine sold to a school, up to four will be sold to parents who witness the advances their children make.

With that reasoning, it has gone into the education field heavily with the Apple II and Macintosh range; the relatively costly Macintosh Plus and Macintosh SE are being used at the university level.

Apart from the obvious marketing ploy of having parents, teachers and the consumers of the future getting acquainted with Apple, the company has also poured time and money into support.

The company has also published *The Australian Apple Education Software Directory 87*, which lists all the programs that are available for the Apple range, with a brief description on each package.

The Apple IIe

The Apple IIe was first released in January 1983 and has been so well supported over the years that it is still one of the most popular computers for home and school use. In that time, most educational software has been adapted for it.

The typical standalone system is the Apple keyboard and computer unit, with its 128 kilobytes of memory. It has eight expansion slots which provide additional memory capacity, enhanced graphics, or communications features.

You can choose from three graphics modes with 16 colours, including graphics resolution of 560 x 160 screen dots. The keyboard is integral with the computer.



Figure 2. Big plusses for Atari's 520ST are price and the standard software for general use that gets you started without having to shop around.

Peripherals such as a modem and a mouse are added by inserting cards into the machine.

The standard 5 1/4 inch disk drive can be augmented with a 3 1/2 inch drive, broadening the range of software available.

Product: Apple IIe
Memory: 128 kilobytes RAM
Drive: Optional 5 1/4 and 3 1/2 inch external drives.
Graphics: Three mode selections, including a resolution of 560 x 160.
Keyboard: 63 keys — including special function key which produces 128 different characters.
Other: Eight expansion slots; builtin speaker.
Price: \$1445 taxed

computer has been dubbed the 'Jackintosh'. It's a blessing for beginners as young as five, who can get the machines working easily.

The education market is only just beginning to realize the potential of the ST range, so there is not yet the vast pool of software available for the Atari that Commodore and Apple users enjoy.

Big plusses for the 520ST are price and the standard software for general use that gets you started without having to shop around. The software may vary between dealers, but it generally includes Basic, LogoWriter (an excellent graphics and wordprocessing package), the Neochrome painting program and a database.

Product Details

Product: Atari 520ST
Memory: 512 kilobytes RAM, up to 192 Kbyte ROM
Drive: Builtin single sided 3 1/2 inch floppy disk drive formatted to 360 Kbyte
Keyboard: 95 keys — including 10 function keys; separate numeric and cursor keys.
Other: Mouse supplied as standard; input/output: RS232 serial, parallel, MIDI, modem and audio cartridge ports; joystick.
Price: \$999 with monochrome monitor (until the end of October).

Atari

The 520ST perhaps is even more user friendly than the famed Mac, as you can get it up and running and producing graphics in super-quick time. This user friendliness is not a mistake — the 'originator' of the Atari range, Jack Tramiel, decided that Atari should go its own way with an operating system. The result was TOS, based on Digital Research's powerful GEM. The system is so friendly that the



Figure 3. Much of the education software available for the BBC Master 128 was written here in Australia.

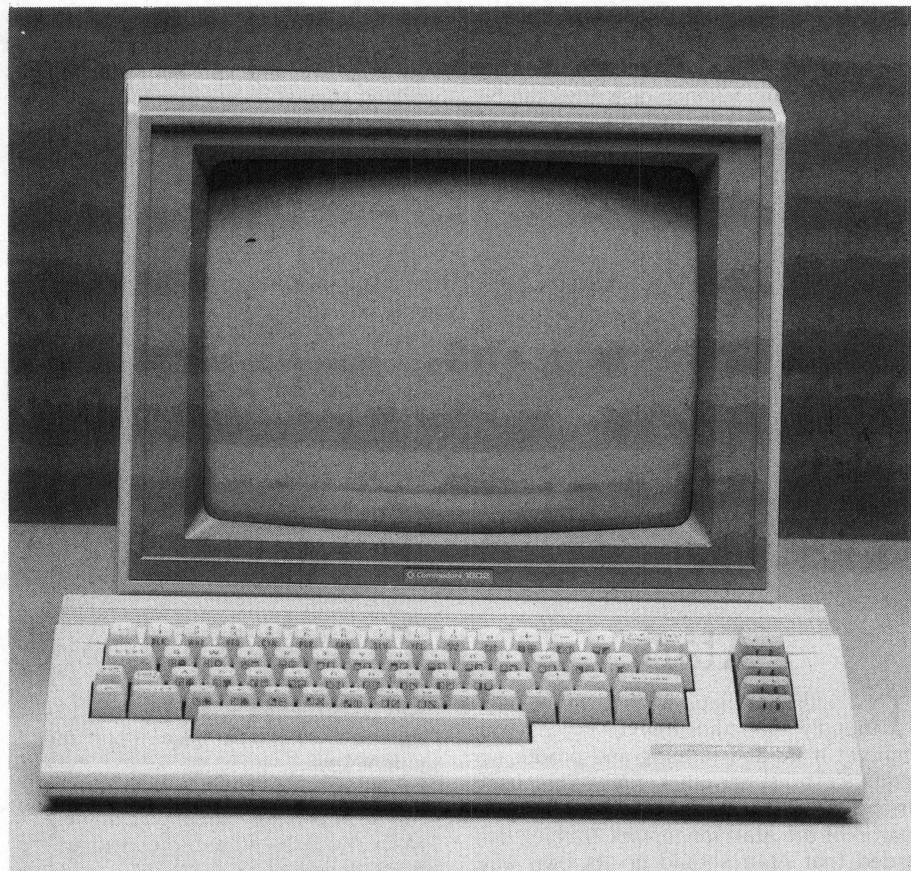


Figure 4: The C64 made its debut using the same technology as its predecessor, the popular VIC-20, which means the software library is now huge.

BBC

Although the BBC series of computers didn't have an easy entry into the Australian market (it was right up against the heavily backed Apple IIe), it had already proven itself in Britain.

It has generally been regarded as a superior low end machine but originally suffered from a lack of software support. This has now been rectified with education bodies, such as the Angle Park Computing Centre in South Australia, writing software to suit the BBC. This means that much of the software available was written here in Australia. (The educational products catalogue for the BBC range of computers was by far the largest we received.)

The BBC was originally manufactured by British-based Acorn Computers with the support of the British Broadcasting Corporation (thus, the name), and was released in 1981. Acorn has since been sold to Olivetti which was instrumental in introducing the Master Series.

The Master Series includes the 128 and the 512, with very little separating them except that the 512 has an additional board that provides fairly good MS-DOS compatibility.

The hardware has gained such a reputation for being reliable that a BBC was used as the computer to monitor data from the cone of the Giotto craft which went to Halley's Comet.

Product Details

Product: BBC Master Series 128

Memory: 128 kilobytes RAM; 128 Kbyte ROM

Keyboard: 93 keys — including numeric keypad and function keys.

Other: Expansion socket, audio out, cassette interface, RS423, analogue, composite video and UHF ports; two cartridge sockets, disk interface and printer interfaces.

Price: \$1641 taxed

Commodore

Commodore is a household computer name, rivalling IBM and Apple in notoriety. Starting with the VIC-20 and now the Commodore C64, the company has a reputation for putting affordable computers in peoples' homes.

The C64 made its debut using the same technology as its predecessor, the popular

VIC-20, which means the software library is now huge.

Owning chip manufacturer MOS Technologies gave Commodore the advantage of providing 'gate arrays', which enable memory banking and otherwise very effective use of the 64 kilobytes in the machine. Unfortunately, Commodore doesn't also own a disk drive maker — the C64's drives are notoriously slow (the machine was really designed for cassettes).

Maintaining the success of the C64, Commodore came out with the C64C late last year. The C64C is practically identical to the standard C64 — the same processor, same I/O ports and the same memory map. The biggest difference is the 128D style keyboard (and a more robust feel to the machine). Much of the disk drive problem was overcome with the addition of GEOS, a new operating system.

With Apple and BBC, Commodore would take equal footing as a specialist in the education beginners market. The momentum of the C64 is still strong — not even the 128D has bitten too deeply into the C64's market even though it offers a complete C64 computer, CP/M compatibility, plus the power of 128 Kbytes in the one machine.

Product Details

Product: Commodore 64C and 128D

Memory: 64 kilobytes RAM (64C), 128 Kbyte RAM (128D); 20 Kbyte ROM

Drive: Datacassette recorder, single 5 $\frac{1}{4}$ inch disk unit which holds 170 Kbyte (each drive has its own microprocessor and memory system).

Keyboard: Typewriter style; 66 keys plus 64 PET graphics keys selectable from the board.

Price: \$499 taxed (64C);

\$599 taxed (128D — monitor not included)

its catalogue is one of the most comprehensive you'll find. It offers a range of computers, from the very basic Tandy 16K Colour Computer 2 to the AT class Tandy 3000, plus extensive coverage of peripherals and software to suit almost any application.

For those who are unsure of whether or not to buy a computer for home, the 16K (expandable to 128 kilobytes) Basic Colour Computer 2 offers an inexpensive way to make up your mind.

Figure 5. The range of software and peripherals available for Tandy's IBM compatible 1000 EX makes it suitable for home business use as well as education.

Product Details

Product: Tandy 1000 EX

Memory: 256 kilobytes RAM expandable to 640 Kbytes

Drive: Optional 360 Kbyte 5 $\frac{1}{4}$ inch separate drive.

Keyboard: 90 key layout including numeric keypad, and programmable function keys.

Other: Optional external 5 $\frac{1}{4}$ inch drive; parallel and video port, headphone jack, two joysticks and colour monitor port; MS-DOS compatibility means it can use software written for IBM machines.

Price: \$1499 taxed



Tandy

Tandy's immensely popular TRS-80, the first 'home computer,' has been superceded by a new range of IBM compatible machines of which the 1000 is the base model. The Tandy 1000 EX runs MS-DOS (IBM compatible) programs without a hitch, although the keys are definitely in an awkward position for some programs. Balancing that is the fact that many of the programs run 50 per cent faster on the Tandy than they do on IBM and its clones.

Tandy is offering support for the new range through its dealer network — and

DSE

THE LOW END of the Dick Smith Electronics (DSE) range of computers is the VZ-300 which epitomises the affordable computer — it's priced at less than \$100. There is specific software developed for the VZ-300, but the range isn't large.

This is an excellent beginner's computer; the provision of Microsoft Basic allows the user to write programs with a minimum of learning. Also, its predecessor, the VZ-200, still has thousands of enthusiastic users; (and a number of very active User Groups, which are an excellent source of information and public domain software on both computers).

In case you haven't already discovered it, the DSE catalogue is a worthwhile investment (\$1). Not only does it cover its wide range of computers and add-ons, but many of the products listed are designed specifically for younger age groups.

Product Details

Product: VZ-300

Memory: 18 kilobytes RAM expandable to 34 Kbyte

Keyboard: 45 keys with auto repeat key.

Other: Data cassette; TV and Video output; Microsoft Basic builtin; options include joysticks, floppy disk drive, memory expansion kits and printer interface.

Price: \$99 taxed



Figure 6. DSE's VZ-300 offers an almost painless introduction to computers.

sale of 10 JXs to the school. But as Gurry explained, the school bought more than just '10 boxes.'

Sieracki believes strongly that children should not wait until high school to be exposed to computers.

'Young children have no fear of computers,' said this father of four.

'The time to introduce them to computers is in primary school, when they can absorb and learn more readily.'

Principal David Nockolds pointed out features of the JX that fit into the school environment: the durability of the machine and the mini-diskette.

'The 3½ inch mini-diskettes are virtually child-proof,' said Nockolds.

'They also hold 720,000 bytes of information, a great feature when an entire classroom full of children may need to enter their stories on one diskette.'

The Statistics

Nockolds conducted a survey of Year 7 students and found that a surprising 50 per cent had computers at home — a high proportion, he thought, for a largely blue collar area which also has a large number of unemployed.

'Although many families said they use

their computers mainly for games, I also detected a trend in many others toward experimentation with other uses,' he said.

Since North Parmelia purchased the 10 JXs, about 15 families have also bought the computers for home use.

'The JX is the ideal family solution computer because it lends itself to educational use, and home business applications such as accounting and word processing,' said Paul Gurry.

Before he made the decision to invest in the computers, Nockolds' main worry was that the teachers might not use them.

'I think one of the main reasons for the failure of computers in the schools is the lack of interest and knowledge on the part of some teachers,' he said.

Making The A Grade

To make the North Parmelia computer scheme work, an intensive computer education plan was launched. It involved teachers, parents, the P&C and computer training conducted by Michele Stewart, another teacher. Sieracki also played an active role, conducting some of the training seminars.

A user software library was established for parents with computers, for a nominal

IBM

Perched on a tract of elevated bushland southwest of Perth and whipped by bracing ocean winds, North Parmelia Primary School seems light years away from the heavy industrial smokestacks of nearby Kwinana and not at all like the setting for an exercise in primary school computing...

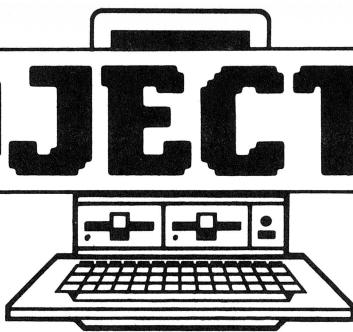
This exercise is bringing together the children, the teachers, the parents, the P&C, the Principal and a number of IBM PC JXs, in a relationship that is both educational and fun.

It began in October last year when IBM in Perth launched a computers-in-schools promotion. In the course of making a series of presentations to schools and P&C groups, the Educational Marketing Manager for IBM dealer Mycorp, Paul Gurry, met Andy Sieracki, Secretary of the North Parmelia P&C.

The outcome of the meeting was the

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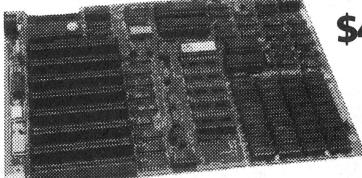
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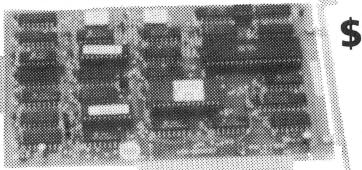
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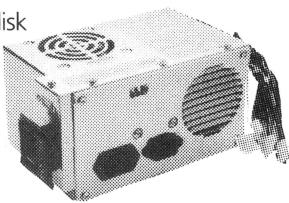
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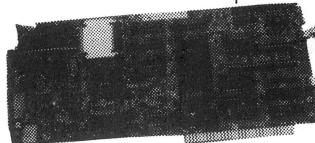
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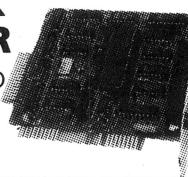
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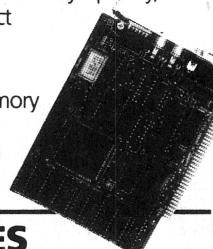


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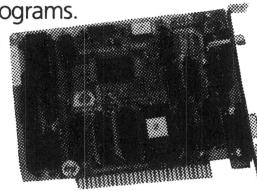
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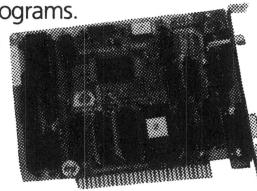


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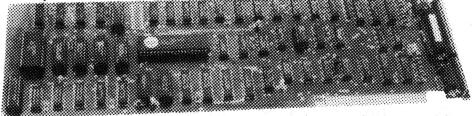
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 - Light pen interface
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Colour Graphics/Printer Adaptor

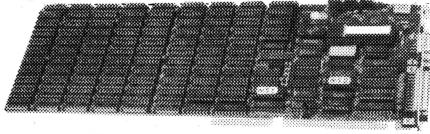
Attaches to IBM-compatible RGB monitor; provides complete compatibility with IBM Colour Graphics Adaptor. Equivalent to the IBM colour/graphics adaptor with additional printer port to replace the video port originally supplied by IBM.

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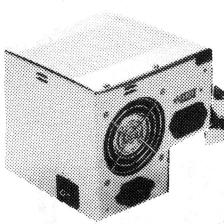


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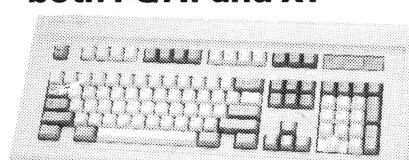
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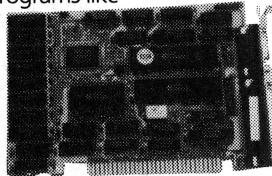
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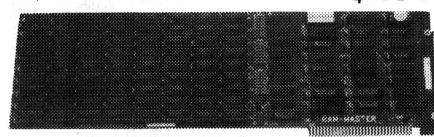
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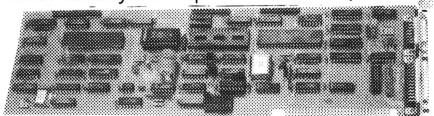
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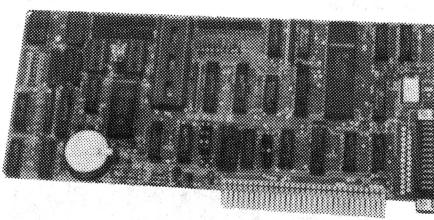
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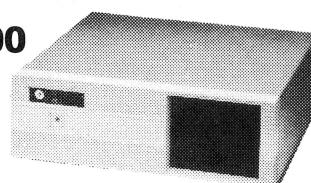
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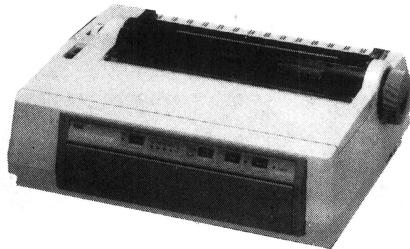


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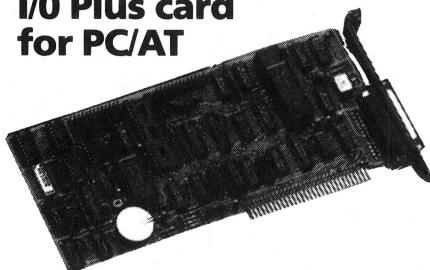


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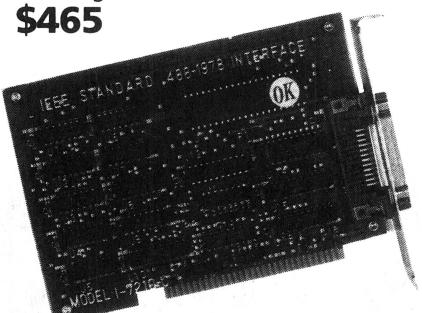
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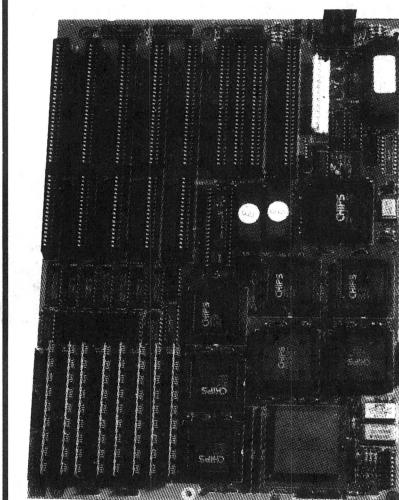
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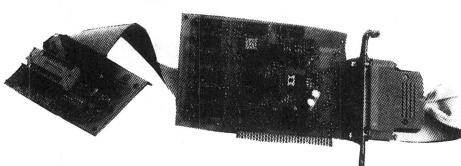
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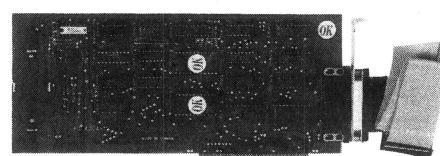
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\$40 joining fee per family.

The JXs were installed in the classroom. This is where Nockolds believes they should be. Years 5, 6 and 7 were given 6 computers, while the junior primary grades were allocated the rest to share. The school plans to buy more JXs shortly when the WA Education Department funding is available.

And how do the children react to the computers?

'We've barely skimmed the surface,' said Nockolds, 'but already the results are staggering.'

A popular computer activity in the classroom uses the Bank Street Writer word processing package for story composition and creative writing.

'The result is richer language, improved spelling and higher self-esteem,' continued Nockolds.

He points out that, while handwriting is still an important discipline, the freeing of children from this cumbersome manual task also frees their minds and facilitates the release of language and ideas.

'The children are fascinated to see their thoughts come out on the printed page,' said Nockolds.

He feels that the greatest beneficiaries of the computer education program are those children needing remedial help. Computer Aided Learning (CAL) packages are now a part of the remedial process, with dramatic improvements noted in most cases.

The school has even printed special 'Computer Driving Licenses' which are

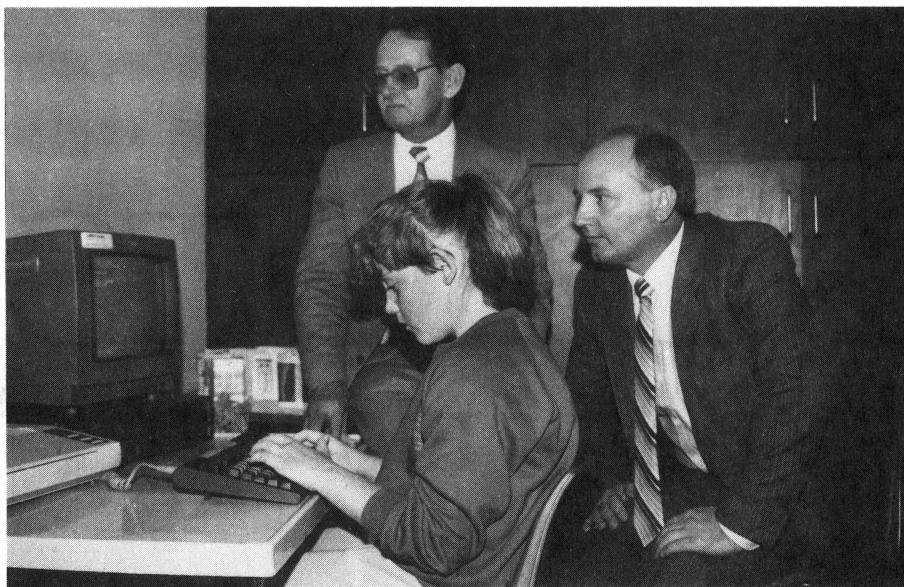


Figure 7. An IBM JX in use at North Parmelia Primary School — seated at the keyboard is student Elizabeth Cheeseman with Principal David Nockolds (back) and P&C President Andy Sieracki looking on.

issued to children who successfully complete a practical test. These are coveted prizes at North Parmelia.

A pet concern of Nockolds' is gender bias.

'We continually stress that girls can achieve the same level of computer literacy as boys,' he said.

'We have also established a peer tutoring program at year seven level, and in all grades we roster the children on a weekly

basis so everyone has a turn at the computer.'

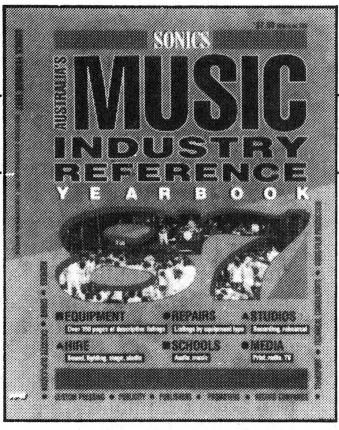
Nockolds has found the first six months of school computing to be a time of establishment and experimentation.

'In the next six months, we'll really begin to use the JXs to their full potential.'

'So far the children have really amazed me with their acceptance and grasp of the computers. We're looking forward to even greater things in the future.' □

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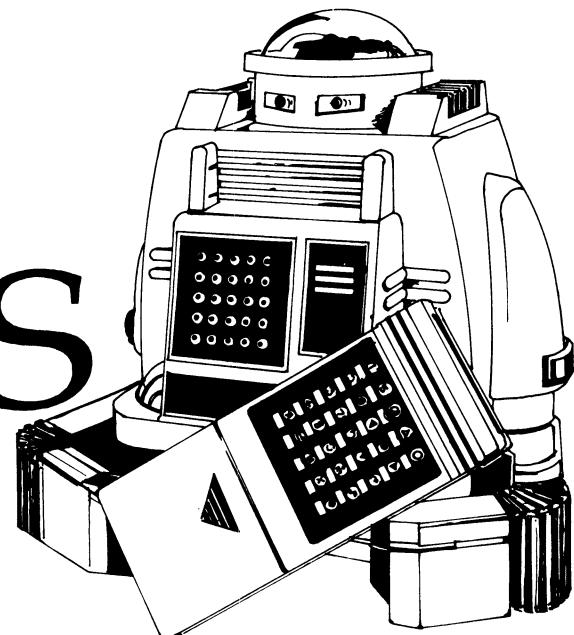
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ROBOTS

Value for money?



Dof Dickinson has found some fun (and educational) friends for her computer — and Steve Bauer tells how to build your own.

BEEN DOWN to the electronics shop this Christmas? When you go, you'll notice a number of robots sitting on the shelves waiting for a home, but there's not so many as there were a few years ago. When I asked stockists and manufacturers about that, I heard the same reason for our dwindling robot population over and over —

'People love the idea of robots, but when they realise that the heightened expectations they have from television will not be fulfilled, they lose interest. If we are to sell them in the short and long term, they have to offer value for money.'

With this in mind, your intrepid reporter joined the Christmas rabble of grumbling, present hunting parents and complaining kids, to see just what we can expect of today's robots.

Before long, one thing became clear. For now, at least, the personal slave is not within our grasp. The ability to nip in and out serving drinks, walk the dog, fetch the mail, clean the house and come up with humorous backchat, is not within the reach of the current offering of robots - nor will it be for some time.

In fact, looked at pragmatically, today's robots could hardly earn their keep as a member of the household. Unless of course, you have a pressing need for a

fully operational set of traffic lights fixed to the bathroom door, or a robotic arm that might just pick up a pen if you instructed it correctly.

I was particularly disappointed to note that many of the interesting additions to robotic toys which have become available overseas this year have still not filtered through to Australia. For example, a robotic dog that automatically reverts to a 'guard mode' and operates sensors to pick up movement if left unattended for several minutes. This is a sensible second use of what is essentially a toy and it goes some way towards justifying purchase.

The same could be said for the executive robot toy I saw which doubled as a calculator — fun, but also practical. Here at home, we're still erring on the fun and totally impractical side. Still this is Christmas, and one should invest in a little frivolity, especially when buying for the kids (they've a life time of 'serious' ahead of them).

If you're trying to buy R2D2, forget it. Looking for a robotic slave is asking too much, as followers of AI research will know. It's probably the wrong way to think of robotics, too. To be honest, it's not so much what can be achieved by a robot, but the understanding and sense of achievement you get from controlling one

that counts. And if you're anything like me, once I get my hands on a whirring, clicking and (largely) obedient robot, I lose all sense of value and quickly become hooked on the fun!

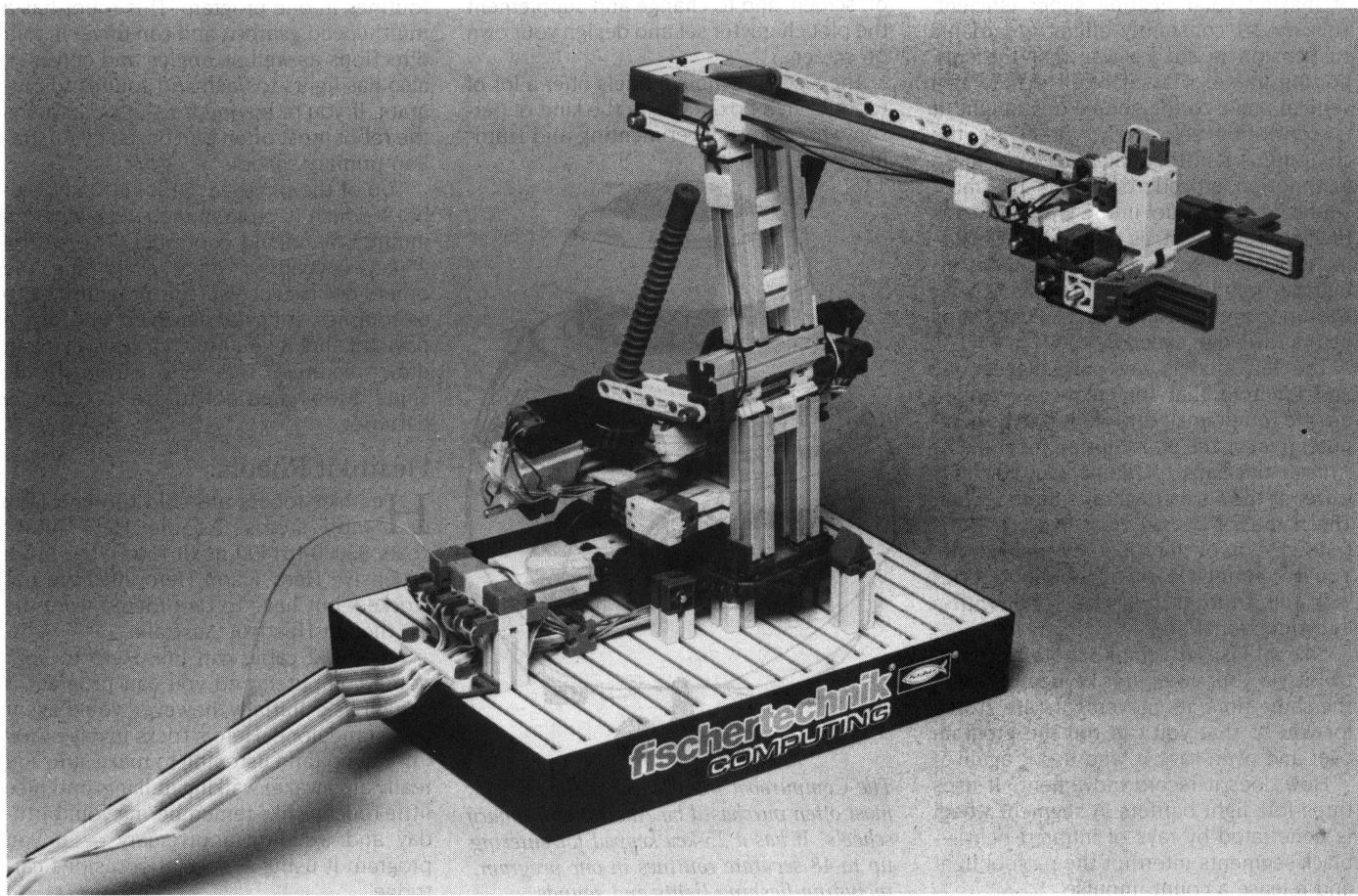
You'll need to select your robotic pal carefully. Some are robots and others are robotic devices — the latter are far more interesting and hold more potential. In both cases, you are in control and determine the outcome, but building your own means you can modify it to suit what you want.

Fischertechnik Computing

The Fischertechnik range of robots is one of the most interesting and challenging available. The robots don't set out to be 'personalities' with standard features — rather they are robotic devices which you create and then program to do what you want. They require an interface to run off your computer and are compatible with Apple, Atari, Commodore and IBM and compatible computers; a program disk is provided with the kits.

Fischertechnik — distributed by Modern Teaching Aids, (02) 939 2355 — offers four different kits from \$300. They start with the Computing Experimental kit designed for beginners with minimal computing skills and little knowledge of Basic.

This kit contains material to make up a 'turtle', a computer eye, a thermometer and temperature control and a welding robot. The turtle is a computer-controlled little beast which you can manoeuvre about on a work space using four elementary Logo commands (move forward, back, left and right). The program which used with this kit enables you to see the route

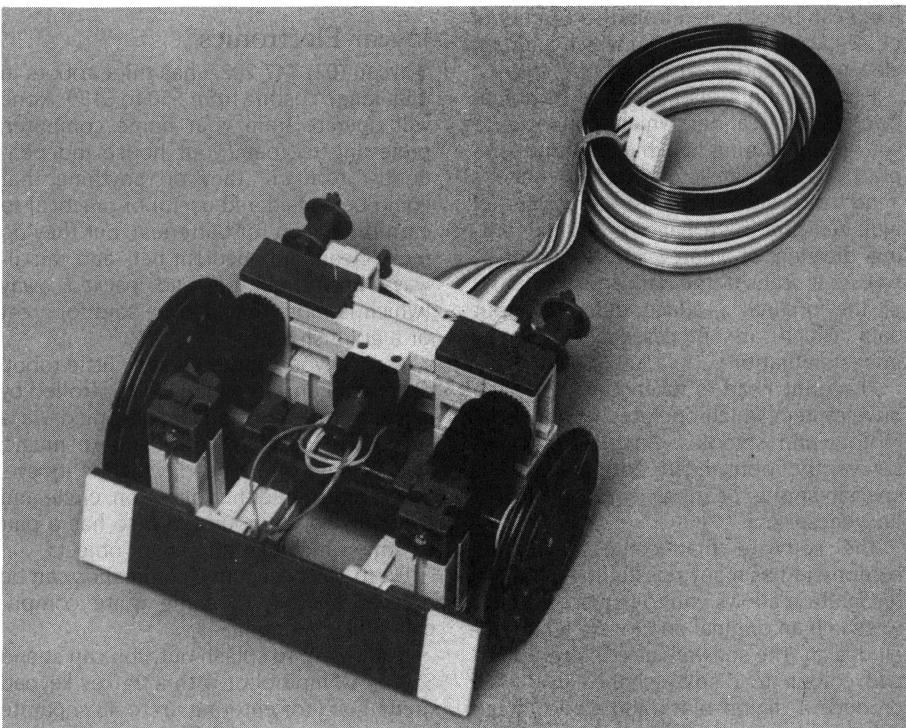


This tri-axial industrial robot (above) has a fully functional arm. Like all Fischertechnik robots it can be controlled directly from your computer's keyboard or programmed to perform a series of actions. The Experimental kit in the Fischertechnik range has material for a computer eye, a thermometer and temperature control, a welding robot and — shown left — a 'turtle,' which you can manoeuvre with Logo commands.

of the turtle plotted onscreen as it progresses. Other computer 'turtles' stop at this, but the Fischertechnik turtle allows you to add an 'eye' — a photoresistor that will sense light.

If this isn't challenging enough for you, Fischertechnik also offers a computing construction kit containing sufficient components to make 10 different robotic models: traffic lights, pedestrian lights, a lift, a machine tool, a rotating antenna, a sorter, a tower of Hanoi, a biaxial teach-in robot, a graphics tablet, a solar cell tracker and a plotter.

If you're looking for practical, the solar cell tracking project looks like a great way



of making solar heating super efficient. This model constantly aligns a cardanic suspension in such a way that the supporting frame of a solar cell stands at a vertical angle to the source of sunlight. It is controlled selectively, either by the computer's real-time clock or by using a fast-motion procedure. This is the most sophisticated model in the kit; the idea is that you start out as a humble Department of Main Roads engineer by mastering the traffic lights, and then work your way up to greater robotic achievements as your knowledge expands.

The ten models are only suggestions and I'm told that for creatively minded people (often unkindly referred to as computer freaks), the possibilities are endless.

If all this fails to tempt you, you may waver at the Fischertechnik training robot. The name, of course is worrying. Who is trained? You or the robot? Probably both. You'll certainly learn all about robotics with this tri-axial industrial robot with a 'fully functional arm'.

Like all Fischertechnik robots, you control it via your computer keyboard, but at the same time, its movements are stored for you so that you can run the program over and over, save it, and use it again.

How does it record movement? It uses three-fork light barriers. A segment wheel is penetrated by rays of infrared light — black segments interrupt the path of light and release a count impulse.

The position of the robotic gripping hand can be obtained from the number of pulses accumulated. All of which is pretty clever stuff, and great fun to play with.

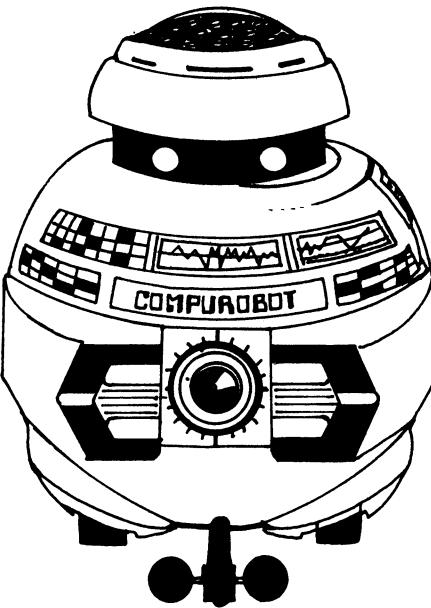
Fischertechnik also offers a combination plotter/scanner which connects to your PC. Scanning is achieved quite simply by a photoresistor in the scanner's 'read head' which reacts to the amount of light reflected by a page of original writing, drawing, or whatever (maximum size A4). As it scans it, the dark and light parts of the original produce different input data which are processed by display image emulation.

The print head is taken care of by the drive system which operates with stepper motors and spindles. An electromagnet lowers the print head onto paper and special spring bearings compensate for unevenness.

The software that comes with this equipment has many possibilities. Pattern recognition allows you to use the scanner to search an original and locate a particular design. The software also allows you to add colour, to display shapes in 3D, to produce a digital black and white image

on screen, and to change and supplement the plot character set and design your own on screen.

The Fischertechnik models offer a lot of robotics in a box. If you're the kind of person who enjoys experimenting and learning, you'll love it.



The Compurobot from Jaycar is the robot most often purchased by Australian primary schools. It has a 25-key keypad for entering up to 48 separate routines in one program, including flashing lights and sounds.

Jaycar Electronics

Jaycar, (02) 747 2022, has three robots in its range costing from \$50 to \$130. None will operate from your home computer, preferring to roam your house independently. Nor will they do anything that could be considered useful or practical to earn their keep (or batteries), but they do make clean and obedient pets and can always be turned off and packed away (which is more than can be said for a cat or a goldfish).

For \$50 you get the 'friendly little robot' (21 cm tall and 15 wide). It's controlled by a microprocessor and programmed via a keypad on its chest. It will make music, wink (a light on its head, which is its eye, flashes) turn in either direction, circle and generally caper around. It also has a pair of arms which can grip small objects.

Up to 18 consecutive commands can be entered leading to some quite complicated programming.

If you want to splash out, you can spend \$50 on Compurobot with a 25-key keypad on its head for entering up to 48 separate

routines in one program. This robot has a multi-speed gearbox and can travel in four directions as well as angles and curves. It also has lights to flash and sounds to program. If you're buying for the kids, this is the robot most often purchased by Australian primary schools.

Top of the range (at \$130) is Compurobot II which is programmed via a wireless infrared, handheld controller, also with a 25-key keypad. It does everything the others do, except you can program up to 64 routines. It has arms which will carry a payload and, if you attach a crayon, it can draw pictures. This one automatically shuts down when not in use to conserve batteries.

Heathkit Robots

Heathkit robots are sold through Dick Smith stores. As the Hero Junior costs \$2000 (\$1400 in kit form), the more expensive Hero I and Hero 2000 are not stocked, but have to be ordered from the US through Heathkit Australia.

An RS232 cable can link Hero to your home computer, and you can program it using Basic. Initially, however, you'd use it as a standalone. Hero's tricks involve waking you up (and listening to make sure you really are awake) walking, talking, and nice little touches like remembering your birthday and wedding anniversary — if you program it using a 'special occasions cartridge'.

If you're looking for a 'droid, then the Hero robots will come closest. Hero 2000 and Hero I are extremely complex (and expensive). These multitasking robots carry onboard touch, light, heat, sound and motion sensors and have many options such as add-on voice synthesiser and manipulating arms.

Hero 2000 has a 16-bit master microprocessor and eleven 8-bit peripheral processors. You program it in Hero Basic which is stored in a 64K built-in ROM chip. You can expand the memory up to 576K by adding up to three additional memory boards — each one is 64K and can have two extra 64K RAM chips set into it.

This is a hobbyist robot, you can add your own breadboards which allow you to test and build your own operating circuits. Two RS232 ports enable you to link Hero up to your monitor and printer; there's also a cassette port.

Hero 2000 can be programmed from its own keypad or from an optional remote ASCII keyboard which will operate the robot from up to 30 metres away.

Hero I is a self-contained robot containing numerous features including a

sonar ranging system which determines the distance between objects and the robot. Its sound detector picks up noises in the 300 to 5000 MHz range, the light sensor sees over the entire visible spectrum and into the infrared range. Its motion detector senses movement up to a distance of three metres. And an optional voice sensor allows the robot to speak in complete sentences.

Once you lift up the robot casing and start poking around with the circuit boards, you quickly realise how complicated robotics is, and begin to get an idea of what would be involved in creating circuits for the likes of C3PO and R2D2.

This being said, the celebrated room-size 16K computers built at Harvard 30 years ago were the beginnings of today's powerful microcomputers and mainframes. In the same way, these true robots are undoubtedly the ancestors of a future generation of friendly mechanical droids. Yes, the robots are coming — but not in time for this Christmas.

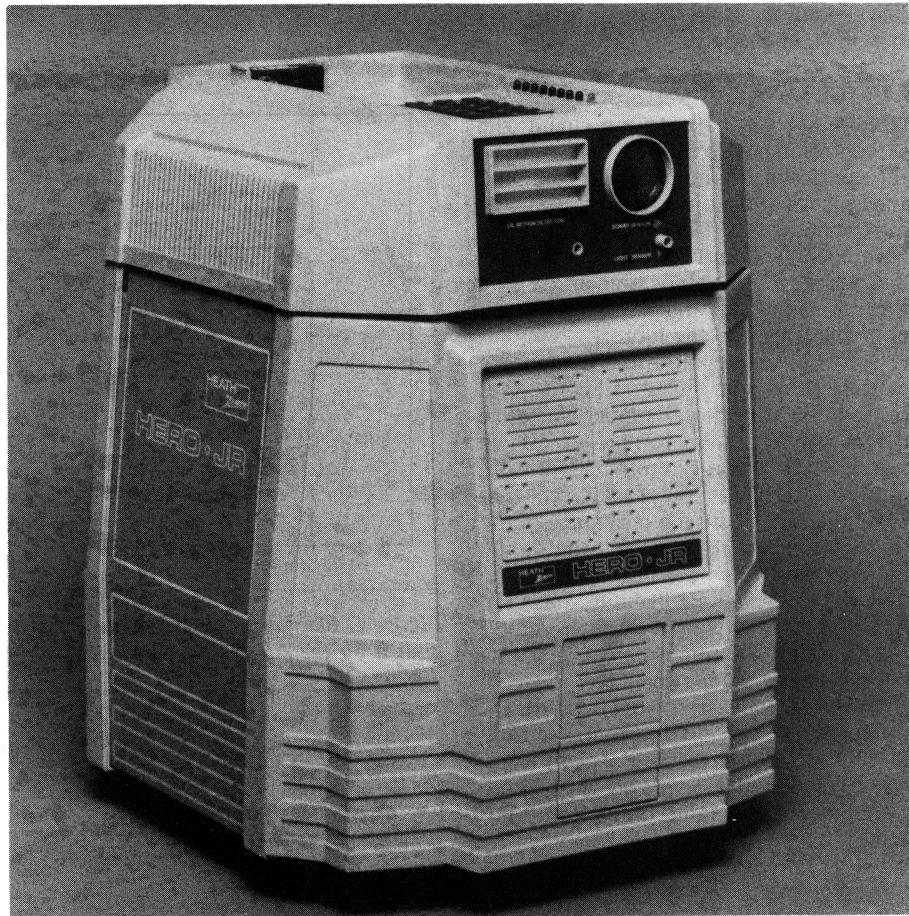
The Heathkit Hero Junior, from Dick Smith, is linked to your computer through an RS232 cable and can be programmed in Basic. Hero can wake you up (and listen to make sure you really are awake), walk, talk, and remember your birthday and wedding anniversary (and this is the bottom of the range!).

Robotics on the Cheap

Steve Bauer of Upwey, Victoria, built an interface which allows him to use his Apple computer to program robots he built himself from Fischertechnik construction sets —

Here's how you can do simple robotics using your Apple II+, a few inexpensive components, and some Fischertechnik construction pieces. Your computer controls the motor, simply driving it forwards and backwards. What you make it control is up to your imagination — remember, this is the start of robotics.

This article isn't purely for Apple owners, but almost any computer. All you need are two or three inputs, such as push buttons, and two outputs of about five volts (such as those which control Light Emitting Diodes). The Apple has these coming out of the games port, and hook-



up is explained in this article. For other computers, consult your technical manual about voltages, limitations, and connections.

Care should be taken with this work. Computers are delicate and expensive to burn. Double check everything to ensure the computer is safe. If you have doubts, seek assistance.

You can buy the Fischertechnik robotic kits plus interface ready-made. But with this set-up, all you need is a Fischertechnik construction set to build your model — any old one will do.

What You Need

Semiconductors — 4 x TIP 31 (power transistors), 2 x BC 458, 2 x 4N28 (optocouplers), 2 x IN4007 (or other diode), and 2 LEDs.

Resistors — 2 x 180 Ohm, 1 x 330 Ohm, and 1 x 4.7k Ohm

Fischertechnik — 1 large motor and a 12 volt power supply — and enough construction material to build an interesting robotic model.

You'll also need a Bread Board, or a Printed Circuit Board (PCB) if you can make one, and wire. Bread Boards are expensive, but they (and the components used on them) can be reused many times. They also make the job of designing circuits easy because rewiring involves no soldering, just pulling the wires out and replacing them differently. For Apple owners, it is tedious working inside the casing around the games port, so a joystick is helpful — a homemade version is described later.

Hook Up

Figure 1 shows how all the components hook up to one another. Because I had never made a circuit board before, I built the entire circuit on a piece of Bread Board. (If you have an improved design on a PCB, let me know!)

The TIP 31 transistors don't need a heatsink unless the motor jams in one position for a long time. Also, be nice to the optocouplers: they are very delicate. If you're using a PCB, it's preferable to mount the optocouplers in a socket for

easy removal — a 16-pin socket will mount them easily.

Circuit Description

There are two parts to the circuit: the controlling and the driving sections. The controlling starts from the computer and finishes at the optocouplers. The driving circuit continues from there. No relays have been used for two reasons; they use magnetism (so do tapes and disks), and they consume too much energy (which normally goes into the motor).

Optocouplers separate the computer's delicate chips from the 12 volts or so that come out of the power supply and drive the motor. They are comprised of two parts: a LED and a phototransistor optically linked inside the casing, so that when the LED is on, the resistance of the transistor drops. This means that when the computer turns the LED side on, the transistor side will act like a low resistor. As voltage can now pass through, the BC 548 transistor will turn on, thus activating the rest of the driving section.

The power transistors work in pairs controlling the power and direction of current through the motor. The pair of power transistors turned on depends on which of the two optocouplers/transistor pairs are activated.

For example, if the top optocoupler/transistor pair is on, then the top left and bottom right power transistors would turn on. When the current flows, it goes through the top left transistor, around through the motor and then out of the bottom right transistor. If the other driving transistor is on, the current flows from the top right to the bottom left — which drives the motor in the opposite direction. The LEDs attached to either side of the motor, simply display which direction the motor is going, and the resistors prevent too much current passing through certain components.

Methods of Input

Now, we need a source of input to tell the computer when to operate the motor, and which way. This is done by various methods: reed switch/magnet combinations, microswitches and so on. These are all hooked up to the computer as if they were a pushbutton.

Microswitches are probably the easiest to understand. When pressure is applied, it pushes a lever down and activates the switch. An example of its use would be in a model elevator — when the elevator reaches the bottom of its 'shaft', its weight would push on a switch to tell the com-

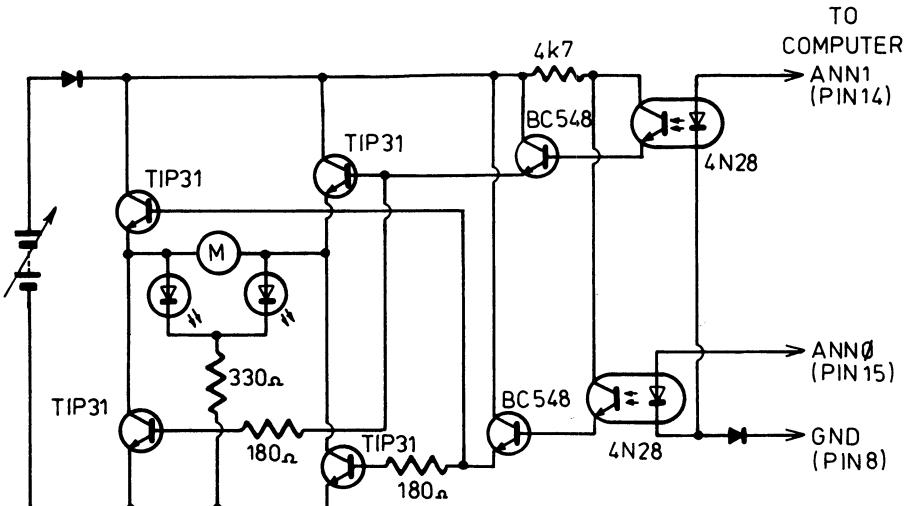


Figure 1. Block diagram for Steven Bauer's Fischertechnik robot controller (although he built it for the Apple II, the principles can be applied to almost any computer).

```

1 REM BRIDGE CONTROL
5 PB = - 16285: REM PEEK LOCATION OF BUTTON 2
6 UP = 3000: REM DELAY TO GO UP
7 WA = 7000: REM DELAY TO WAIT
10 GET A$
19 REM KEYPRESS? YES? LET'S GO
20 IF A$ = "" THEN GOTO 10
29 REM UP
30 GOSUB 100
39 REM WAIT
40 FOR X = 1 TO UP: NEXT X
49 REM STOP
50 GOSUB 180
59 REM WAIT
60 FOR X = 1 TO WA: NEXT X
69 REM DOWN
70 GOSUB 140
79 REM REACHED BOTTOM? YES-STOP
80 IF PEEK (PB) > 127 THEN GOSUB 180: GOTO 10
89 REM NO - KEEP GOING UNTIL IT DOES
90 GOTO 80
100 REM UPWARDS MOVEMENT
110 A0 = PEEK (- 16296): REM ANN. 0 OFF
120 A1 = PEEK (- 16293): REM ANN. 1 ON
130 RETURN
140 REM DOWNTOWARDS MOVEMENT
150 A1 = PEEK (- 16294): REM ANN.- 1 OFF
160 A0 = PEEK (- 16295): REM ANN. 0 ON
170 RETURN
180 REM STOP
190 A0 = PEEK (- 16296): REM ANN. 0 OFF
200 A1 = PEEK (- 16294): REM ANN. 1 OFF
210 RETURN

```

Listing 1. An example of a controlling program (for a Fischertechnik bridge) using the technique described in the text — when a key is pressed the bridge raises, stops, waits, and then comes back down until it is flat again (a reed switch and a magnet arrangement are attached to pushbutton 2, so that the contacts close when the bridge is horizontal). When annunciator 1 is on, the bridge goes up. Note the program has been organised so that both annunciations are never on at once: when designing your program, ensure that this never happens, and/or the motor might burn out.

puter to stop the motor — the same would apply at the top.

Alternatively, a magnet could be placed on the side of the elevator, so that when the elevator passes the reed switch, it signals the computer. This works because the contacts inside the reed switch are closed if a magnet is held nearby. Don't forget that disks and tapes are also affected by magnetism — and keep the motor supply away from them too, as it has a surrounding magnetic field.

LDRs work on a principle that when light enters, the internal resistance is lowered. This way a computer can sense if a room is light or dark and act accordingly. A disadvantage of this is that if it is dark already, a computer cannot detect anything. LDRs are connected up to the games port, not to the pushbuttons but to the games control inputs which measure an analogue signal. This way the computer can sense the amount of light present and tell if it is constant or changing.

Apple Games Port Extension

It's messy fiddling around trying to hook these inputs up to the Apple games port inside the casing — so bring the port outside the casing via a 16-core flat cable.

All you need is a metre of cable and a 16-pin plug, the rest can be done on a Bread Board. Separate each wire about 1 cm and remove about 3 mm of insulation from the end. Then add solder and heat each one to 'tin' it. Quickly solder each wire to the plug (holding it in a socket) attaching pin 1 to wire 1 (the wire with the red stripe on it) and then working anticlockwise. Wrap a wire around the cable to hold it in shape, so no undue tension is placed on the connections. Take the other end and do the same, but instead of soldering it onto a plug, insert the tinned wires into the Bread Board in such a way that the outlay is the same as the games socket, starting with pin 1 up the top left working anticlockwise to pin 16 up the top right.

Check the extension with a multimeter (or even a LED and a battery) to ensure there are no faults or shorts. Plug your joystick into the Bread Board, and then insert the plug into the game port. Turn the computer on, and check the joystick with a game, or using a Basic program. If there is a problem, turn the computer off, remove the plug and check it again; once it works correctly, you've got a perfectly good games port extension.

Connections

The inputs are connected to the pushbutton inputs, and the output comes

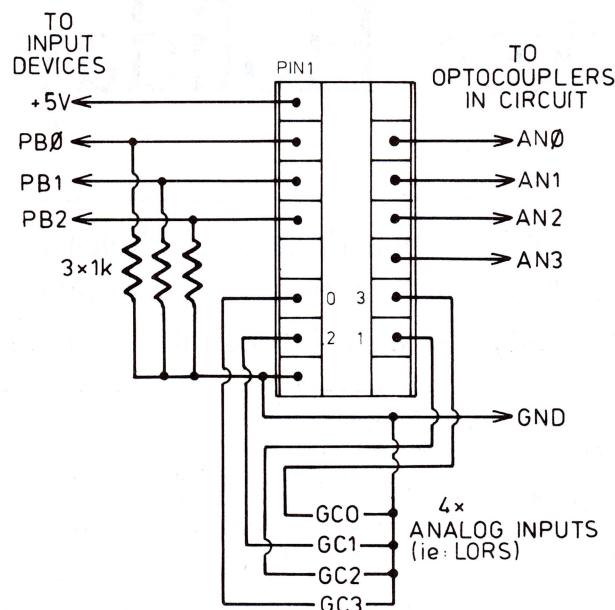


Figure 2. Trying to fiddle around inside your Apple to install a games port can be a new lesson in frustration — so make your own games port to fit on the outside of your machine.

from the annunciators. Pushbuttons 0, 1 and 2 are taken from pins 2, 3 and 4 respectively. One wire from the switch should be connected to the +5V supply (pin 1), and the other wire to a pushbutton input. A resistor of about 1 K Ohm should be connected between this input and pin 8 (ground 0,V). The annunciators 0, 1, 2 and 3 are found in pins 15, 14, 13 and 12 respectively. The Optocouplers should be connected between one of these, and pin 8 (ground).

If a LDR is used, then it is connected between the game controls and the +5 V supply. Game controls (the analogue inputs) 0, 1, 2 and 3 are pins 6, 10, 7 and 11 respectively. It is advisable not to use pushbuttons 0 and 1, and game controllers 0 and 1 because they are used by your joystick and paddles. Diagram 3 shows how everything is obtained from the games port. Theoretically, the computer can control two motors this way, but I haven't yet tried it.

The Controlling Program

Now that we have the hardware ready for input and output, we still need the controlling program. This is really quite easy, all the program has to do is read the inputs, and act accordingly. An example of a controlling program is given in Listing 1, which controls the Fischertechnik bridge I have built.

How to Use Your Setup

This setup can be used to build elevators, cranes, cars, bridges, robotic arms — the only limit is your imagination. Robotics is a growing field which becomes increasingly complex and a start like this provides insight into how industrial robots work. □

Product Details

Product: Fischertechnik Robots

Distributor: Fischertechnik Computing, 26 Chard Road, Brookvale 2100.

(02) 939 2355.

Price: From \$300

Product: Jaycar Compurobots

Distributor: Jaycar Electronics, 115 Parramatta Road Concord 2137.

(02) 747 2022.

Price: From \$50 to \$130

Product: Heathkit Robots

Distributor: Dick Smith Electronics, Cnr Lane Cove and Waterloo Roads, North Ryde 2113.

(02) 888 3200.

Price: Hero Junior (kit form) \$1400; the Hero 1 and 2000 can only be ordered from the US — ask for a price.

Hacker Holiday Competition

Win a copy of WordStar Professional Release 4 in our Hacker Holiday Competition — all you need is that worn out copy and a PC (and a bit of time for fun).

IT'S CHRISTMAS! Four busy programmers pack up their disks and set off to their favourite holiday haunts. From the information given below, work out which place each programmer visited, what their characteristic was and what happened to them.

You'll need to use your word processor. Set your character width at 65 (this is important!) and key each of the pieces of text given below into a document file. Try to find the clue which is hidden in each piece of text. When you have the clues, use the special grid to help you find the solution. For each fact you discover, mark a cross (X) on the grid, and for everything you de-

duce to be false, mark a zero (0). One clue has been marked on the grid in this fashion to get you started.

Clue 1

~T deletes a word in WordStar. This would help you untangle these two sentences —

There is nothing more infuriating than trying terminally ill for months to unravel had a someone else's loss of programming code memory. The only to address was discover that lost at the program Port is not worth Hacking. using.

Clue 2

~T will delete the words 'looking down' from this passage. ~OJ will unjustify copy in

WordStar. It may demystify this clue; look for whole words —

The holidays are a time of closing your manuals, looking down and feeling so bored while you try to entertain relatives and be funny. A programmer is not the kind of person you need when Santa Claus, who is giving out presents arrives. The trouble is that Santa wasn't told about you wanting a brand new Cray this year. 'Oh, joy, Santa doesn't know anything about computers', you think, and stick a C64 game in a drawer — shame it won't run on your IBM. It took you weeks to program your exciting Christmas quiz game for the relatives, but you soon realise that they have all got the wrong end of the stick and have put your mouse in the cage with Bus the hamster.

Clue 3

~QA finds and replaces text. To make life easier for you in deciphering this code, the letters, y,f,x,k,w and g have already been converted —

What You Could Win!

WORDSTAR is an institution in word-processing. Over three million copies have been sold worldwide. The good news for existing and new users, is that WordStar Professional Release 4 contains just about every feature a writer could wish for (and a few they haven't thought of).

One of the most exciting enhancements (there are 159 of them, we're told) to this version of WordStar is the dictionary which, besides containing 61,000 words, also enables you to find rhyming words and homonyms and creates anagrams.

On top of that there's the ability to use WSCHANGE when you install the program, so that you can set up the editing commands to suit your own taste. This will be good news for those who thought that commands like Ctrl-T and Ctrl-G (for delete a word and delete a character) lacked logic, and would have preferred a d for delete. If you have function keys on your PC, this means there are up to four possible settings for you to define — either pressing the key alone or with Shift, Control or Alt. This makes editing far simpler and a lot quicker.

And if speed is important to you, you'll be pleased to learn that the new version

of WordStar is very much quicker.

Along with these major changes, there are a whole lot of new features which make wordprocessing easier and more efficient: an Undo command means you can restore the last character or block deleted; there's Word Count for those who need to keep an eye on the extent of their copy; and you can now move the cursor to the end of the sentence, word or any specified character. The delete function has been made far more ruthless — you can delete the rest of a sentence, paragraph or up to any specified character.

Finding your way around files is easier with the new 'goto' page command which will take you rapidly to your specified page. And there's no need to number pages any more, WordStar does this automatically for you. You can also place marker to help you find your way around the text. These are located by a single command.

A helpful new feature is customised text which now appears on your screen in a way that helps you see how you have set-up your copy for printing. Underline actually appears on screen as underline; boldface, superscripts, subscript, strikeout and italics appear as brighter or em-

phasised characters. If you have a colour monitor, you can set it up so that each of these appears as a different colour which you can customise to your liking.

You can now print multiple copies, and print and exit from a command line or simply print from a command line, which saves time.

Backspace will now delete, which is both logical and useful, and you can turn upper case characters to lower case and vice versa. For those who exchange text files or find that when they take text via modem it's full of hard carriage returns, there's a new command that will strip them out for you, which means no more fiddling about with unscrub programs.

The list of enhancements goes on. It's still WordStar of course, but it's a super version which is perfect for business and private needs.

If you're unlucky enough not to win our competition, you'll be pleased to know that existing WordStar owners can upgrade to WordStar Professional 4 for a mere \$169 — a steal considering that it's really a whole new package rather than a simple upgrade. First time buyers will pay \$575 (untaxed) — still very well worth it! There are three million of us who think so, anyway.

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Clue 4

G deletes a character in WordStar, but make sure it isn't lost altogether —

If you enjoy programming every saturday night, you could think coming away with uss onn a programmers' weekend trip. Aass you'd think, beds aare mmissing fromm the beedrooms as noono thinks off bbeed if they're hacking aaway all night and bbeing as antisocial as ddirt. The cuisine hhaas little to recommend it aas it cconsists esentially of frozen dinners aand nnasty driedd-upp take-aways frroom our ddisgusting local shhop. Aall tthe ingredients you'd hhopee for in an eexciting weeekend of feverish keeyboarrd bashing are cattered foot; a fridge full oof warm cokke ttops off thhe eexcellent facilities, wwhich is why our dedicated yooths keep onn comingg bback to see us at Hacker'ss Paradise year after year.

Clue 5

Y deletes a line in WordStar; but which lines?

No Joy For Al's Drive — a ditty
 Al Gorithm was secretly obsessed by fair
 Joy Stick
 But just the thought of him made her feel
 rather sick.
 He used to plague her with disks of junky
 routines
 Designed to produce pretty flowers and
 romantic scenes
 She never played his programs, since they
 looked a mess
 The bad character lost the address
 So she sat down herself and wrote him a
 few routines
 And when he played them, they shot his
 drive to smithereens.

Clue 6

The new version of WordStar will let you replace lower case letters with upper case and vice versa. It makes some WORDS stand out and helps you correct punctuation quickly —

no-one could have been a more industrious programmer than Trace. She Slipped her last program into its package. a new version on Disk of her latest accounting package, she was hoping to sell it to banks Or large enterprises to show how much money they Lost. their accounting did not round down sums to the last half cent and give each separate account a separate Address. at least this will prevent people taking advantage, she mused as she gazed out of the window at the Lake and turned off her Mackintosh for the night.

	Point Sinclair (WA)	Port Hacking (NSW)	Lake Mackintosh (Tas)	Great Australian Bight	bored	chip on shoulder	terminal illness	bad character	took wrong bus	lost address	lost memory	slipped a disk
Al Gorithm												
Mat Rix												
Joy Stick												
Trace Routine												
took wrong bus	○											
lost address	○											
lost memory	X	○	○	○								
slipped a disk	○											
bored												
terminal illness												
chip on shoulder												
bad character												

SOLUTION

Name	Place	Character	What happened
Al Gorithm			
Mat Rix			
Joy Stick			
Trace Routine			

Rules

- 1) The competition is open to all readers of *Your Computer* (but some knowledge of WordStar is necessary).
- 2) The winning entries will be those with the 'most correct' answers. In the event of a tie, neatness and presentation will be used to decide the winner.
- 3) Forward entries on a separate sheet of paper to: *Hacker Holiday Competition, Your Computer, PO Box 227 Waterloo 2015 NSW*. The competition closes with the last mail on February 1, 1988.
- 4) Employees of The Federal Publishing Co and WordStar Australia, (and their families) are not eligible.
- 5) Descriptions of the competition and instructions on how to enter, form part of the competition.
- 6) The prizes are as described here; there will be no cash alternatives or exchanges. Entries will be judged by the Editor of *Your Computer* or his nominee.
- 7) The Judge's decisions will be final and no correspondence will be entered into regarding the entries.
- 8) Winners will be notified by telegram and announced in the March 1988 issue of *Your Computer*.
- 9) The promoter is The Federal Publishing Co, 180 Bourke Rd, Alexandria 2015 NSW. □

IF YOU'RE GAME

Playing around at Christmas

Dof Dickinson (with help from Dean Roper, aged 11) braves the world of adventure games where a man is a man and the good guy nearly always wins.

Army Moves

THIS IS a seven-part shoot'em down adventure for those who consider the thrill of Rambo-style excitement from their armchair an ideal way to spend Boxing Day.

I checked it out on a C64. The screen graphics were very good and while the blaring music and sound effects got on my nerves, my eleven-year-old assistant assured me he wouldn't have it any other way.

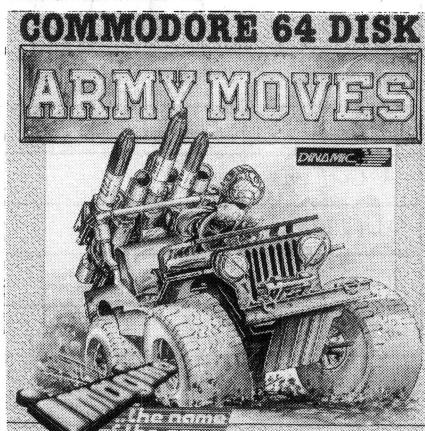
The documentation explains, 'You are a member of the SOC (Special Operations Core) a crack regiment of Specialist Commandoes picked for the most dangerous missions.' Actually, we wouldn't have even qualified for the army reserve after our pitiful performance at the game as we trekked by jeep, helicopter, and finally on foot avoiding lorries, fighter planes, giant toucans and quicksand.

The aim of the first stage of the program is to pick up a code from the jungle heliport which lets you proceed to the next

stage and eventually find the hidden enemy plans which is the aim of the game.

'Not pacey enough', said Dean. In fact, he was finding the game difficult and the pace does increase. It should keep you involved for the Christmas hols and a little longer, but it is nothing new.

*From Ozisoft: C64 cassette \$29.95, disk \$39.95, Amstrad cassette \$29.95, disk \$44.95.



Strip Poker

TALKING of sexist, we come to the businessman's answer to a rainy lunchtime. Strip Poker is a stimulating simulation game that invites you to select an opponent to play at strip poker. You pick between the less skilled Susie or the cheeky Melissa, rumoured to be an ace player.

These two well endowed women are draped across your screen on a bed and even when fully clad, this definitely looks like a game you shouldn't be playing. For

this reason it has an inbuilt 'modesty switch' which makes Susie or Melissa disappear temporarily if your boss comes sauntering past.

Strip Poker caters for women too; while the master disk has only Melissa and Suzy, you can buy additional data disks which contain men and women — that should keep everyone happy.

Except it doesn't. It tends to frustrate players instead because the girls are difficult to disrobe. In fact, it has been rumoured that they start cheating if you get too close to winning.

I saw it in black and white on a Mac. I think it would be more seductive in colour.

*From Ozisoft: Amiga \$69.95, Apple Mac \$69.95, Apple II family \$49.95, C64 disk and cassette \$39.95, additional data disks \$24.95.

Renegade

IF YOU get your kicks out of beat'em ups rather than shoot'em downs, this is for you. You play the part of the all-American guy who has to karate out nearly every male and female in New York (or wherever this is set) to get his girl for a date. You begin in the tube station, assailed by thugs. And if you think your evening is starting out on the wrong foot, that's just for starters. You end up taking on a smorgasbord of bikies, female gangsters (who hate men entering their territory!) and razor-wielding thugs. And it's pacey. 'Sgood', said Dean, 'cept you need three hands to play it.'

This isn't mentioned in the documentation, but he's right, three hands is a distinct advantage; the only way we made



any headway with the game was with me at the keyboard belting hell out of our vicious attackers with back kicks, side kicks and so on while Dean used the joystick to jump out of the way.

Loud music hypes up the whole situation, although you can get rid of it early in the piece by hitting the space bar — of course, junior wouldn't hear of it.

Even with the two of us punching and kicking the hell out of all these nasties, we still couldn't get the girl, leading to the conclusion that there's heaps of fun in this game for those of you with three hands and hours to spare.

I also suspect that our hero's punch is rather wimpy; whenever we hit any of the bad guys, they stood there and took it like a man. If they hit us back, we passed out or died.

From Ozisoft: C64 disk \$39.95, cassette \$29.95.

Accolade's Comics

THIS IS comic book land and you're the hero (male, of course) called Steve Keene. However, for once you're not expected to be entirely macho (well, not *all* the time) although any mistakes and you find yourself trying to grip onto slippery ladders while sharks clamp their jaws hungrily below you — rather apt for the Australian situation, we thought.

The adventures you set out on smack of James Bond and the like; in fact, the program opens appropriately enough in a boy's bedroom where, as we know, all such fantasies are born.

Being the hero means that you decide your destiny to a certain extent. This involves choosing the responses to conversations and deciding which of three replies should fit into the speech balloon. Things swing along quite merrily as long as you pick the right replies, but the

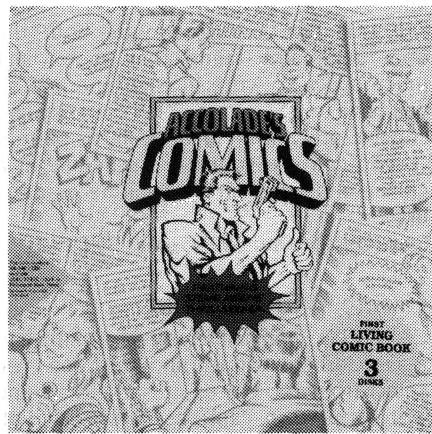
choice is not always easy. I couldn't resist selecting, 'I think my hand is stuck to my chin' when our hero struck a particularly macho pose and sure enough we were down among the sharks in punishment before long. Heroes, you learn, are not flippant.

As you can imagine, the adventures have many possibilities which is why there are three double-sided disks in the pack. At appropriate moments you're asked to insert a particular disk and if you get it wrong you're told, 'Wrong disk, you dummy!'

There's a lot of reading and thinking involved in this program compared to the average 'if it moves kill it' mentality of games. This made me wonder if Dean would enjoy it. 'Would you buy this?' I asked casually, 'Or do you think it's the kind of program you'd use at school?'

'Oh no, I'd definitely buy it,' he said. So there you have it, caring parents, here's a program kids will enjoy while reading and thinking, too. It's sexist of course, but you can't have everything.

From Ozisoft: Apple and C64 3-disk pack \$69.95.

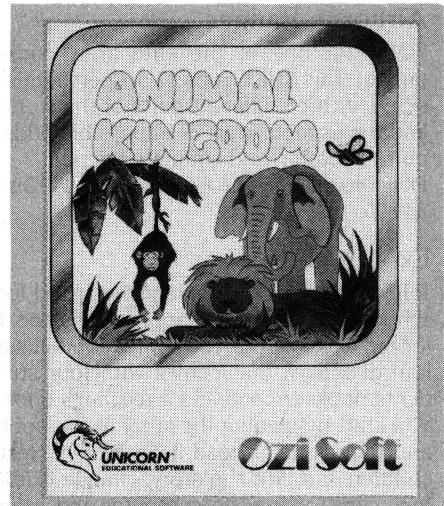


Super Hang-on

A SEQUEL to Hang-on, this is a motorbike racing simulation which should delight all fans of Wayne Gardner. You select between four levels of difficulty which comprise four tracks on four continents. You are accompanied by the throb of music as you go.

Acceleration is realistic and once you reach 250 km/h you can press the turbo button which sends you flying down the course causing the handlebars to shake as your speed picks up and up. The graphics are exciting!

From Imagineering: C64 Disk \$39.95, Cassette \$29.95.



Animal Kingdom

THIS IS an educational program for the kids. It has six sections. The first is a large database containing basic information on all animals.

Animal Spells is a spelling quiz that asks you to spell different animal names. If your spelling is correct, you're rewarded by a butterfly; if it's wrong, the correct spelling is given.

Animalgrams are anagrams of well known animals. Hints are given and you are asked to find the correct answer.

'Who am I' presents six animals in boxes, a brief description is given of one and you are asked to nominate the correct animal.

'What's different' presents six animals and asks you to find the odd 'man' or (animal) out. The memory game presents six animals, and then hides them. You have to memorise where each one was. At the end of each game you're given a personalised score.

From Ozisoft: Apple 59.95 Amiga, IBM, Mac \$49.95, C64 disk \$24.95.

International Karate Plus

MORE FIGHTING, but this time it's karate. This is the sequel to International Karate, the popular beat'em up. The new version has got balls — bouncing balls, new music and an additional computer-controlled character.

You compete against either two computer controlled opponents or a friend with the computer controlled player fighting you both. New moves are available: backflip, double head kick (you do the splits in mid-air and can knock out both opponents) and a head butt.

From Imagineering: C64 Cassette \$29.95, Disk \$39.95.

Airborne Ranger

YOU ARE one of the elite army corps (again). This disk boasts 12 desperate missions in three different parts of the world and the usual mixture of impossible odds, quick shooting and simulated action.

From Imagineering: C64 Cassette \$39.95, Disk \$49.95.

Explore-a-Story

THIS IS a series of programs designed for schools, but with home applications, too. I looked at Rosie the Counting Rabbit. It's a four-disk pack that comes with four students books to read and a teacher's book. You start by reading the story in the book and then you can read it on screen. Next children can edit the story, change existing scenes using the computer and even create new stories from the scenes. The idea is to encourage editing, reading, writing and creativity. The pack is beautifully put together and educationally very sound.

From Dataflow: Apple II family \$102 per story. Dataflow.

The Pawn

YOU WILL be enchanted: The Pawn is adventure gaming at its very best.

You are cast into a bizarre setting. Imagine the kingdom of Kerovnia during a social upheaval. King Erik is the man you want to see. He has banished the dwarves who are suspected of assassinating Queen Jenah II, understandably, the people of Kerovnia are not happy with this situation. A general election is on the horizon, with King Erik slipping in popularity as he defers his decision to reinstate the whisky-making dwarves!

Powerful stuff, but don't despair, The Pawn is subtle enough to appeal to the beginner and hardened adventurer alike. Fortunately, the documentation is accompanied by several pages of cypheric help. By typing in parts of the code the program presents a series of tips for specific locations.

The language parser of The Pawn is first rate. It allowed us to type in complete sentences and conduct an animated conversation with some delightful characters, not to forget some very intelligent animals.

To top it all off, The Pawn has 30 screens of stunning colour graphics, options to save a location, support for a printer, and selectable text size.

And now, 'Where did Zita say he was going for the sorcerers conference?'

From International Software: Atari ST series, monochrome or colour ISD, \$89.99.



Timelinks

FOR THE businessperson who has everything (including Strip Poker), here's a computerised datebook that allows you to plan your weekly and daily timetable. Use it to keep appointments and to plan ahead.

Entries can be logged by the hour, the only complaint being that there isn't much space to write in each one and so you have to be concise. Used correctly and consistently it is an ideal business partner — you can see your day's schedule at a glance and print out copies if necessary. I liked it!

From Ozisoft: Atari \$99.95, Mac \$99.95.

Create With Garfield

GARFIELD FANS will enjoy their chance to make Garfield comics and cartoons. You select from 200 pieces of Garfield art and write your own captions or speech balloons. A variety of typefaces are offered. Cartoons can be printed out and used to create personalised cards, posters and labels. This is an excellent open-ended program that allows creativity and teaches expression.

From Dataflow: Apple II family \$67.98, C64 \$62.31.

Bridge 5.0

IN COMPARISON to Strip Poker, Bridge is positively boring and a lot more serious. The graphics consists of hands of cards; you play with the computer against two other opponents. If you're a bridge freak, it's a great way of improving your game.

From Ozisoft: Amiga \$69.95, C64 disk and cassette \$39.95, Apple Mac \$64.95.

Starglider

LOOKING FOR the ultimate shoot'em up? Then look no further — Starglider is in a class of its own.

It has stunning screens and real, sound sampled sound effects for explosions and laser fire. If this isn't enough, Starglider uses real digitised speech for its many warnings and instructions.

Your mission? To defeat the invading Egrions and to annihilate their fortified flagship — Starglider One. For this you need superb air-to-air and air-to-ground combat skills, experience in low level flying, defence and attack manoeuvres.

Budding F1-11 pilots line up for your turn, this game is made for you, but don't despair we are still struggling to get past level two.

From International Software: Atari ST series, colour ISD \$89.99.

The Karate Kid Part II

TIRED OF getting sand kicked in your face? Then brush up your flying kicks, high punches and forward somersaults with Karate Kid II.

However be warned, this is not just another Karate game. This is the game of the film. Guide Daniel through fight after fight against powerful adversaries, then face the evil Chosen in the Castle of King Shohashi, where you must discover the secret of the drum — or die!

Remember the film? 'Practice, Daniel-san practice'. Practice you must as Karate Kid II is not just about fighting. To equal young Daniel you must learn to catch flies with chopsticks and break ice with your bare hand.

Tough stuff, but then who said Karate was meant to be easy.

From Computer 1: Atari ST series colour monitor Atari Computers \$79.99. Computer 1.

Where to get'em..

Ozisoft: Suite 33, 24 Kippax St, Surry Hills, 2010.
(02) 211 1266

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#756 MEMOIRS

A diary system with encryption of the diary or an ASCII file.

#760 MINIGEN

Turbo Pascal screen code generator - paint screens, open and close windows and create pull-down menus.

#761 The IMP Shell

A powerful expert system - has utilities to develop and test new expert systems. Good for classification tasks, troubleshooting and choosing from alternatives.

#763 FINGERPAINT

One of the very few good paint programs that will run on a Hercules card, with variable drawing functions and text.

#765 GALAXY

A fast RAM based WP. Very easy to use with choice of menus or keyboard commands.

#780 BRIDGEPAL

Looking for up to three partners with whom you can play Bridge? A great way to practice.

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A collection of more than 13 useful utilities from Buttonware.

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Many new features are added to the original Game of Life. Creates video patterns that evolve like biological cells. Very colourful.

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This Australasian written system not only includes a full general ledger but it has various reports on your entries, a bank reconciliation and trial balance.

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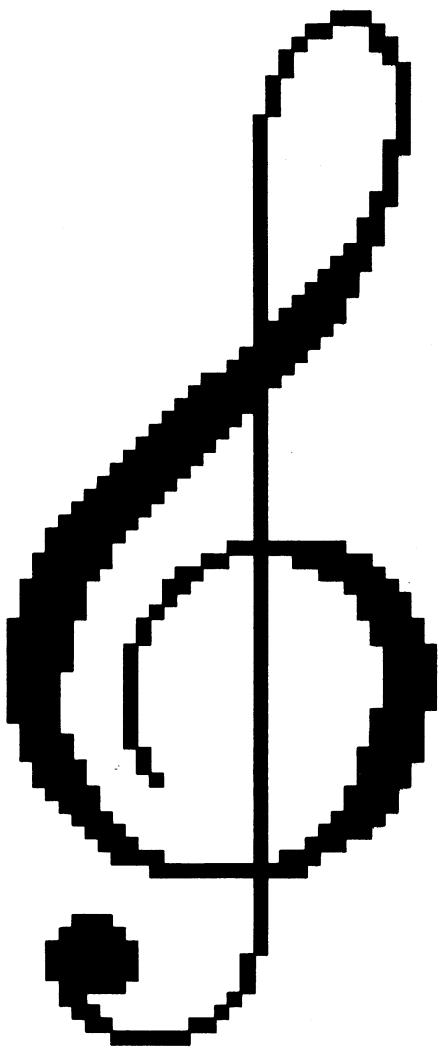
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DESIGNING SOUNDS FROM the bottom-up using additive synthesis, involves superimposing harmonic elements. If additive synthesis represents the architectural method of sound generation, subtractive synthesis is more like sculpture since timbres are fashioned by chipping away unwanted material.

Analogue synthesisers first became popular as rock 'n' roll keyboard instruments during the early 70s. However, until a decade ago, most synthesisers were monophonic, that is, they could produce only one note at a time.

Commercial hard-wired 'performance' synthesisers were particularly convenient for live use, but these instruments were restricted to a limited range of sound 'programs'. More flexible systems were assembled from arrays of voltage-controlled modules. However, to program a sound, the operator would have to manually in-

Microcomputers, MIDI and Music Subtractive Synthesis

Writing music is hard enough, but designing sounds?!
This month, Andrew Symaniz explores the use of additive and subtractive synthesis in sound design.

terconnect vast arrays of sub-systems using patchcords or pin matrices.

A typical analogue system might incorporate several voltage-controlled oscillators which provide a variety of waveforms rich in harmonics — square wave, sawtooth and so on. Voltage-controlled filters can be applied to these waveforms to alter the relative mixture of harmonics over time. And voltage-controlled amplifiers might also be used to dynamically shape the envelope of the tone-colour, or to control other modulating signals that assist in animating a sound's waveform.

Even today, analogue synths are favoured for their distinctive 'warm', 'fat' or 'rolling' sounds — elicited according to the principles of subtractive synthesis.

Although subtractive synthesis can yield some interesting approximations of traditional instrumental sounds, the manual procedure of replicating *precise* parameter settings for a particularly complex 'patch' can be extremely time-consuming — and verges on the impossible.

In the late 70s, a new breed of microprocessor-controlled analogue synthesisers began appearing on the music scene that were able to instantly store and recall specific sound-patches, and play them polyphonically. These instruments include the Sequential Circuits' Prophets, the Oberheims, and the Roland Jupiters. Several of these early 'polysynths' use the same internal microprocessing chip, the Z80, to control programming functions.

In practice, the resistance values of the various pots, sliders and other important controls on an analogue synthesiser can be scanned, 'quantised' by a microproc-

essor and stored as a set of discrete numbers in program RAM. To retrieve a stored program, the internal micro simply regurgitates this information back through D/A converters that apply the appropriate voltages to the right controls.

Analogue synthesisers that play several sounds simultaneously usually contain an additional keyboard-dedicated chip that keeps track of polyphonic keyboard assignments. This processing chip constantly scans the keyboard, then, depending on the chosen mode, assigns the correct voltages to the available oscillator banks.

The Roland Compumusic

Roland were one of the first synthesiser manufacturers to employ the auxiliary processing power and memory of a personal computer to drive a multi-synth setup.

In 1983 they began marketing a unique music composition aid called the Compumusic console controller — a control box of sorts, physically resembling a rudimentary sound mixing desk, which interfaced with the Apple II via a circuit board and multiway cable.

This peripheral unit contained a panel of sliders and pots for controlling groups of audio parameters — volume, sustain, decay, and the like. Its eight channel computer-driven sequencer could be configured to control either the internal six voice synthesiser/seven voice drum machine, or, to sequence up to eight external monophonic analogue synthesisers via traditional 'Gate & CV' (control-voltage) connectors, located on the rear panel.

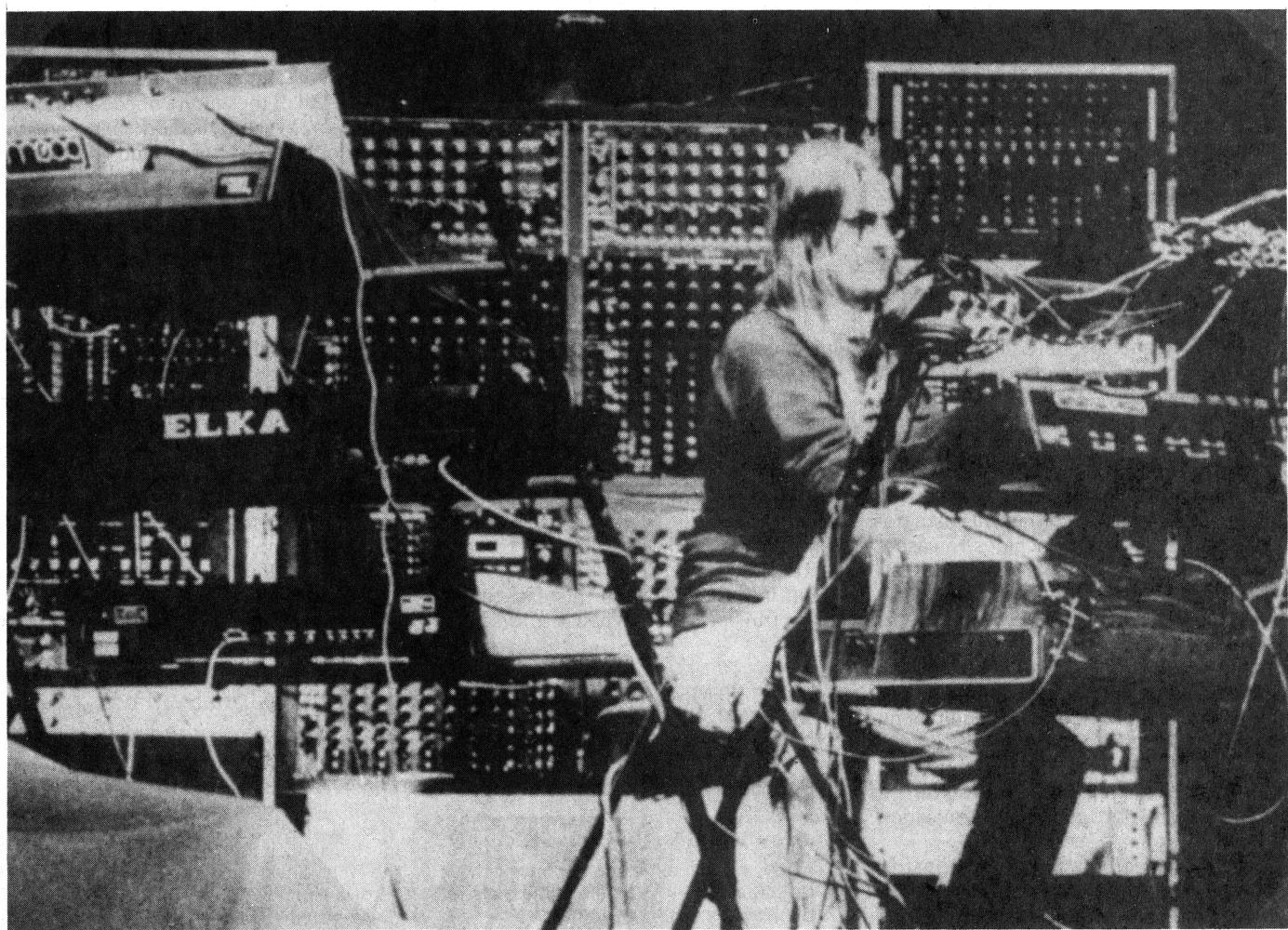


Figure 1. An infamous publicity shot of Tangerine Dream's Chris Franke in performance.

Although the Compumusic's built-in synth and drum timbres were not programmable via the sequencer, they were useful for monitoring musical compositions, before hooking in more sophisticated equipment. The Compumusic's song editing features were helpful, with measure copying, insertions, deletions, and playing/looping facilities.

By today's standards, however, its sequencing software was rather primitive. 'Notes' were represented onscreen in tabular form (values for control-voltages, step-times and gate-times). And music performances (arranged in measure) were listed as groups of numbers that scrolled vertically up the screen. The system was not capable of receiving real-time input, and there were next to no provisions for recording performance dynamics.

Nevertheless, at a time when the concept of a music-network was hardly more than a twinkle in the electro-musician's

eye, the Compumusic system was considered a genuine novelty. In particular, it enabled owners of several brands of 91 volt per octave synthesisers to provide synchronised multi-channel orchestrations of their 'old favourite' sounds, from one central sequencing source.

The Chroma

Also about this time, Fender/Rhodes released a sophisticated keyboard synthesiser called the Chroma. This was the first musical instrument of its kind to include a dedicated computer port — used specifically for communicating with Apple personal computers.

The Chroma is a 16-voice polyphonic, fully programmable analogue synthesiser with options for pressure-sensitive keyboard control. The instrument is capable of some breathtaking sounds, since combinations of voices can be 'layered' across the musical keyboard. Up to 50 voice-

presets can be programmed and stored digitally on-board the Chroma.

The Chroma's timbral programming facilities are particularly noteworthy. Since the *routing* of individual voltage-controlled components is also programmable, the instrument functions essentially as a 16 synthesisers in one. Each of the 16 internal 'signal-paths' can be patched together in various combinations to create very rich, complex sounds.

With an Apple II computer attached via its 25-pin multiway interface, the instrument's capabilities are even more impressive. The Chroma can send and receive both live performance information plus programming information (for instance, all 50 parameter settings for each of the 50 programs) between instrument and computer.

The Apple-resident Chroma sequencer enables up to 16-tracks for recording, with different sounds assignable to each track.

Special sets of preset voices (required to play a particular piece) can be uploaded to, or downloaded from the computer's disk library, in just a few seconds.

The most convenient Chroma features for performer musicians are its comprehensive real-time recording and editing features (both real-time and non real-time editing is possible — for tidying up recorded keyboard performances). Specified sequence sections can be played or looped until 'cued' (using a footswitch) to begin 'drop-in' recording. Also, considerable performance dynamics and other expressions can be 'captured' and recorded by the sequencer — the idea being that on replay, the music retains its 'emotional' content.

All time-dependent performance information and other functions can be displayed on-screen for editing. This data (for each sequence track) includes, measure numbers, key numbers, velocity times, attack times, keyboard 'pressure' values, volume numbers and assorted level, pedal and switch movements.

And for the multi-instrumental player, there's a pair of 'Sync' and 'External Clock' ports that enable additional equipment, capable of communicating with the Chroma (the Roland TR-808 Drum Machine, for example) to control the timing of the system, or to run in synchronisation with the Chroma's sequencer.

This marriage between musical instrument and personal computer was considered a bold, new advancement at the time. But ironically, the fanfare was short-lived. The times, they were a-changin' — very rapidly, in 1984 — and there were other forces, blowing in the commercial wind ...

Interfacing Problems

For some time, several leading manufacturers of musical instruments (Sequential Circuits, Oberheim, Roland and a few others) had been aware of the growing problems of interfacing between the various musical devices of different makes.

When voltage-controlled synthesisers first hit the consumer market, each manufacturer initially specified its own standards for gate-trigger levels and control-voltages ... and, hardly ever the 'twain did meet.'

As synthesisers became more affordable in the mid-70s, many multi synth owners began experimenting with cross-patching between various instruments — mostly with limited success. In time, the majority of synthesiser manufacturers agreed on a Gate/CV standard (5 to 15 volt

positive-going triggers, and 1 volt per octave controls).

All was fine until sophisticated polyphonic synthesisers began to appear on the market, with their digital keyboard scanning and other proprietary micro circuitry. Some manufacturers even began investigating new, revolutionary techniques for generating sounds: frequency modulation, phase distortion, and of course, digital sampling. Once again, the chances of linking up various synthesisers of different makes began to seem increasingly more remote.

Roland briefly flirted with a 14-pin DCB (Digital Communications Bus) standard for linking up its own range of dedicated musical hardware. For instance, Roland sequencers, such as the JSQ-60 and TR-909 Rhythm Composer, could be used in conjunction with several pre-MIDI Roland synthesisers such as the Jupiters and Junos.

But in the midst of all this excitement, chaos truly prevailed. When MIDI was first

introduced, Roland-compatible musical 'systems' were, at the time, linked by as many as four independent communication modes. All of these were needed simply to maintain synchronisation between the (growing) variety of sound production equipment — Gate/CV, Sync-24 clock, DCB and MIDI.

Just prior to MIDI's 'official' acceptance, several half-formulated attempts to solve the problems of synchronised interfacing compatibility was causing considerably more confusion than enlightenment.

Into this environment entered the Musical Instrumental Digital Interface — hailed from the start as the saviour of the experimenting synth player. It promised to put an end, once and for all, to 'glazed eyeballs' caused by triggering and interfacing problems.

In the next article in this series, we'll take a brief look at the MIDI 1.0 specification, and outline some of the major MIDI applications that have contributed to its phenomenal growth and success.

Update on the Soundchaser and the AlphaSyntauri

IN OCTOBER, we looked at Passport Designs' and Syntauri's music composition systems, the Soundchaser, and the AlphaSyntauri.

Shortly after the introduction of MIDI, both companies began winding down hardware and software support for these legendary 'bolt-on' music peripherals for the Apple II.

Passport were very quick to perceive the wider potential of MIDI, and almost overnight, established their general-purpose MIDI-cards as the standard interface hardware for popular computers, such as the Apples and Commodores. And, because they were already working in this area, Passport were able to offer the first-ever MIDI sequencer, the MIDI/4, in 1984.

Syntauri underwent a name change to Mimetics Corporation, and, for a while, they continued to market upgraded software for the AlphaSyntauri (such as the Metatrack 5.0 sequencer, which supports MIDI In, MIDI Out and velocity-sensing, amongst other things). But more recently, the company has been concentrating on 'Desktop Multi-media' — adventurous, interactive software, that aims to integrate the real-time production of music and video within a single, affordable computer system, the Amiga, for example.

Although both Passport and Syntauri became more engrossed in their other projects, the many thousands of Soundchaser and AlphaSyntauri users have

since been very well served by the various user groups around the world.

In Australia, Alan Todhunter and Steve Wright from the SUN Group (Syntauri User Newsletter), continue to provide much useful information and access to the very latest (mostly user-designed) hardware and software enhancements for these systems. Some of these goodies include:

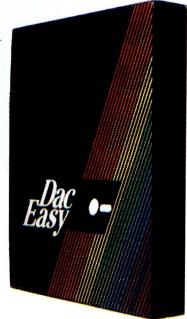
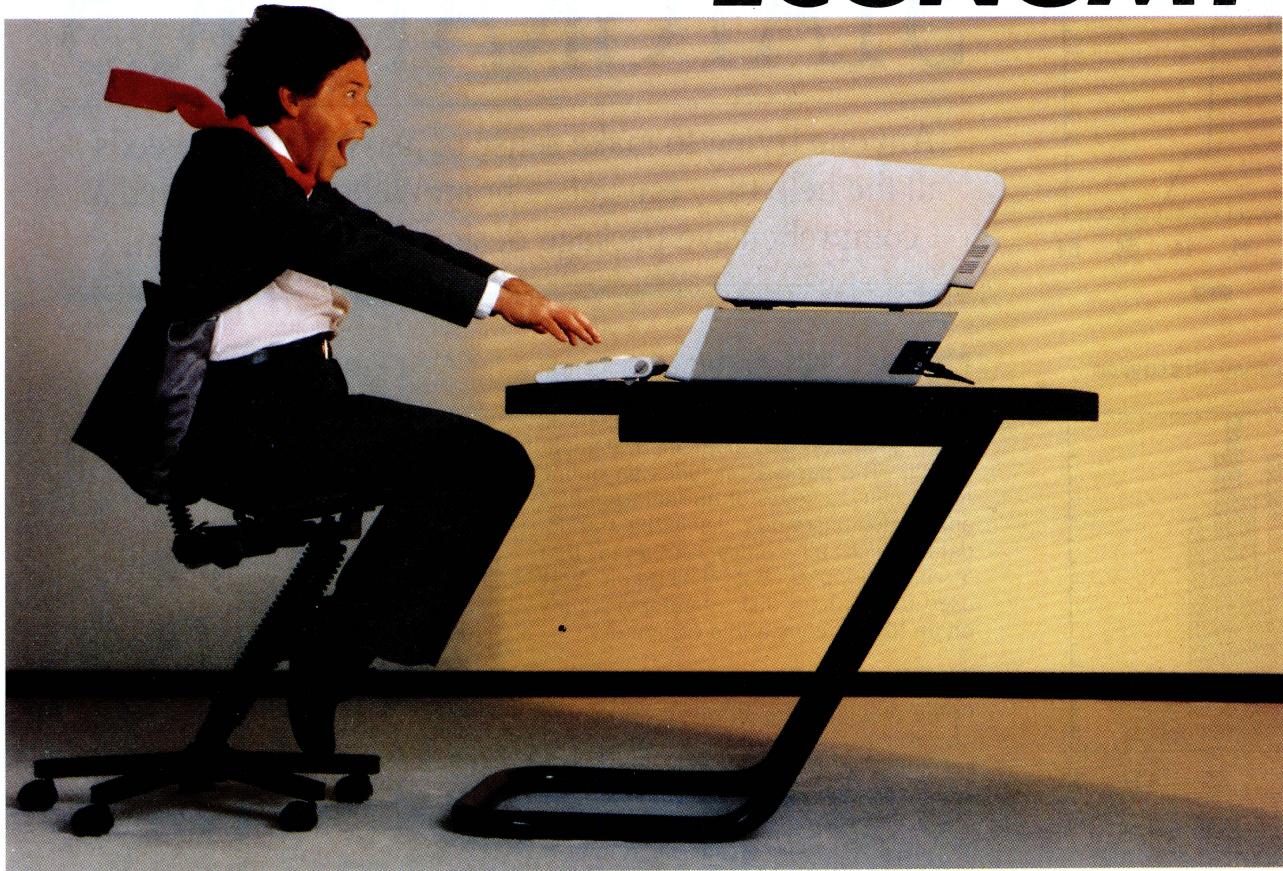
- Hardware modifications which replace the Syntauri's wavetables with an interface to another computer system, to get 256K(!) of sampling memory.
- Sound sampling using a Decillionix card to load wavetables into the Syntauri.
- Additional methods for sound synthesis using combinations of sampling, additive, or FM techniques.
- Advanced 'sync' capabilities.
- Full MIDI support allowing the possibilities of control from external MIDI keyboards, and output of the 16-track sequencer channels to external MIDI instruments and access to all 'Syndisks' (currently, 40 or so), a disk-based monthly user-publication from America that provides tips, new sounds presets, songs and utility programs.

So, if you would like to know more about SUN's current activities — or anything at all, really, regarding the Syntauri and other musical applications of the Apple II, please do not hesitate to contact the group through Alan Todhunter on (02) 637-6775 after hours. □

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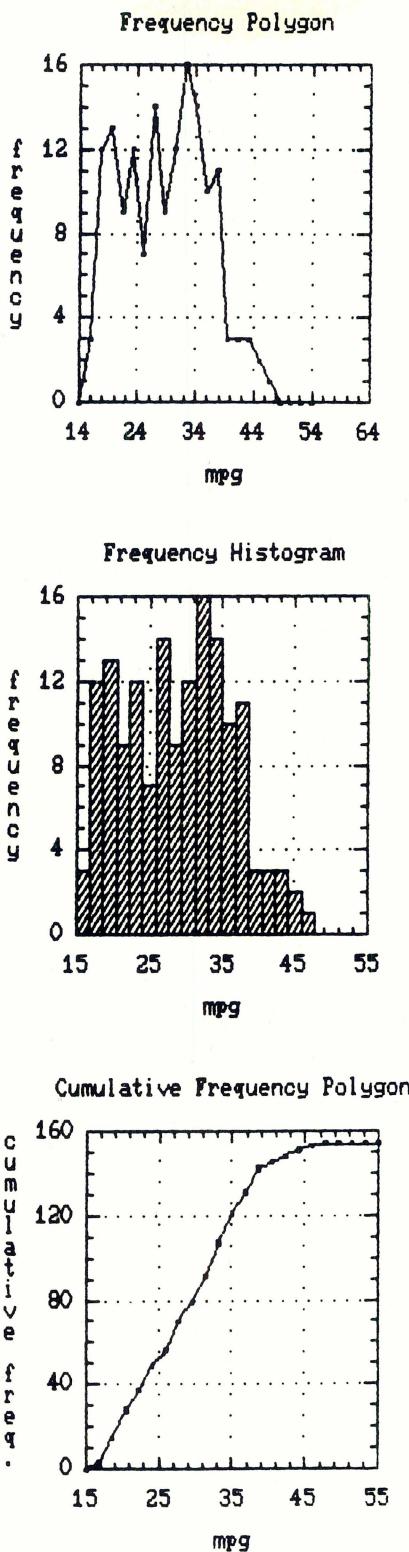


Figure 1. Three different type of graphs produced by Statgraphics using the same data.

STATGRAPHICS

Anyone trying to make sense of masses of data needs all the help they can get — Brian Webster discovered a comprehensive package designed exactly for that.

THE STATGRAPHICS Statistical Graphics System offers a wide range of integrated statistical, graphical, and mathematical applications. The package includes an online help facility, a series of tutorial examples and a demonstration using the tutorial data, which all comes on seven IBM 5 $\frac{1}{4}$ inch floppies, but is certainly best used from a hard disk. Statgraphics runs on an IBM or compatible computer.

The Programs

The programs are all menu driven and cover a range of topics. The 'house-keeping' associated with creating, storing, and manipulating data is covered by Data Management. The variable names (which are case dependent) are usually written in lower case and have names such as origin, mpg, make, year and price; these are stored in a file such as cardata. Data can be numeric or character, and the numeric data can be processed. The data dictionary can be displayed in the form *drive : data file : variable*. The file can be selected with the cursor keys and copied, erased or edited in a spreadsheet type format.

System Environment allows changes to the default system, such as the pitch and duration of the audio tones known as blah, bell and chirp. It also can change the default disk drives, the colours on the graphics and screen, the size of the graphs, execute DOS commands, and allow temporary exit to DOS. If you have stocks and shares, the holiday schedule can be put in to allow for stock exchange closure on the weekend and bank holidays. (And ensure that you do sell or buy at the best time!)

Reports can be generated from the data files using the Report Writer. The statisti-

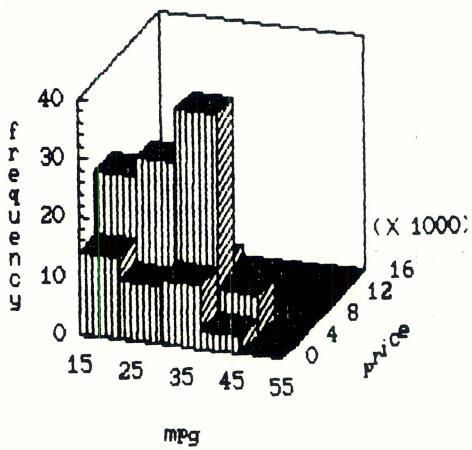
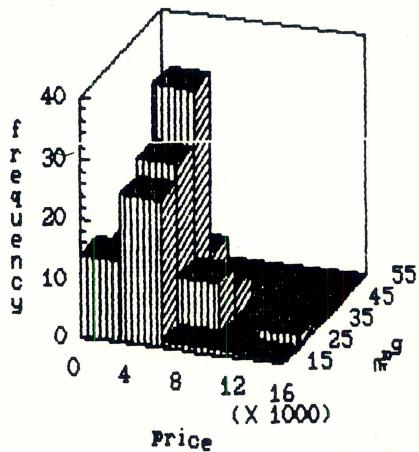


Figure 2 Using the same data as Figure 1, the information can be grouped and shown as a three dimensional histogram — the variables can be changed to the opposite axis for a different look at the data.

cal reports, graphs and various word processing functions such as underlining and pagination can also be performed to make an integrated report. For example .cha is used for a chapter heading, .pp for a new paragraph, .br to put a break in the text. The .im command is used to imbed any of the reports such as a statistical report on the car data we'll use as an example. These reports can be a standard summary, a frequency tabulation, a cumulative frequency polygon, or a histogram in two or three dimensions.

The plotter interface allows not only for standard plotters but for the user to set up individual plotter control. Two and three dimensional graphs in line, point, bar, and pie form can be plotted using the Plotting

functions. Descriptive Methods produces statistics including average, variance and standard deviation.

Estimation and Testing gives confidence intervals, and can compare data with a normal distribution and plot out the results in the form of a hanging histogram. Data can fit into one of eighteen different distribution types (such as normal or binomial) using Distribution Functions.

Two other programs, Analysis of Variance and Regression Analysis are used to compare data with a normal variation about a mean, typically the 95 percent confidence levels.

Forecasting is used to predict future values and trends. The example of IBM share prices on the demonstration disk is

not up to date and predicts an ever increasing price for IBM shares — a bad example, perhaps, since IBM shares and profits have taken a fall lately. If Statgraphics could really predict future share prices — well, we could all be rich, but unfortunately trends and forecasting assume a steady change in the calculated direction, which may or may not be true.

Statgraphics also has the ability to produce Quality Control charts to see if a production sample is of acceptable quality. Smoothing is used to smooth out random variations in data, and can be non linear, or exponential of various types. Time Series Analysis provides 15 procedures for time series analysis, such as a connected line plot for up to 12 variables.

Table 1.

Row	MPG	Cylinders	Displace	Horsepower	Accel.	Year	Weight	Origin	Make	Price
1	43.1	4	90	48	21.5	78	1985	2	Volkswagen	2400
2	36.1	4	98	66	14.4	78	1800	1	Ford	1900
3	32.8	4	78	52	19.4	78	1985	3	Mazda	2200
4	39.4	4	85	70	18.6	78	2070	3	Datsun	2725
5	36.1	4	91	60	16.4	78	1800	3	Honda	2250
6	19.9	8	260	110	15.5	78	3365	1	Oldsmobile	3300
7	19.4	8	318	140	13.2	78	3735	1	Dodge	3125
8	20.2	8	302	139	12.8	78	3570	1	Mercury	2850
9	19.2	6	231	105	19.2	78	3535	1	Pontiac	2800
10	20.5	6	200	95	18.2	78	3155	1	Chevrolet	3275

Table 2.

Variable:	MPG	Weight	Price
Sample size	154	155	155
Average	28.7935	2673.02	4633.06
Median	28.9	2620	4250
Standard deviation	7.37721	601.144	2028.22
Minimum	15.5	1755	1900
Maximum	46.6	4360	15475
Range	31.1	2605	13575

Table 1. Some of the 155 items in the cardata sample file — it has been imported into a word processor, and modified slightly.

Table 2. A Statgraphics summary of the data from the sample file with a selection of variables.

Table 3. Statgraphics can produce comprehensive frequency tables (this one uses the MPG data from the cardata example).

Table 3.

Class	Lower Limit	Upper Limit	Midpoint	Frequency	Relative Frequency	Cumulative Frequency	Cum. Rel. Frequency
At or below	15.00			0	.00000	0	.00000
1	15.00	16.82	15.91	3	.01948	3	.0195
2	16.82	18.64	17.73	12	.07792	15	.0974
3	18.64	20.45	19.55	13	.08442	28	.1818
4	20.45	22.27	21.36	9	.05844	37	.2403
5	22.27	24.09	23.18	12	.07792	49	.3182
6	24.09	25.91	25.00	7	.04545	56	.3636
7	25.91	27.73	26.82	14	.09091	70	.4545
8	27.73	29.55	28.64	9	.05844	79	.5130
9	29.55	31.36	30.45	12	.07792	91	.5909
10	31.36	33.18	32.27	16	.10390	107	.6948
11	33.18	35.00	34.09	14	.09091	121	.7857
12	35.00	36.82	35.91	10	.06494	131	.8506
13	36.82	38.64	37.73	11	.07143	142	.9221

Mean = 28.7935 Standard Deviation = 7.37721 Median = 28.9

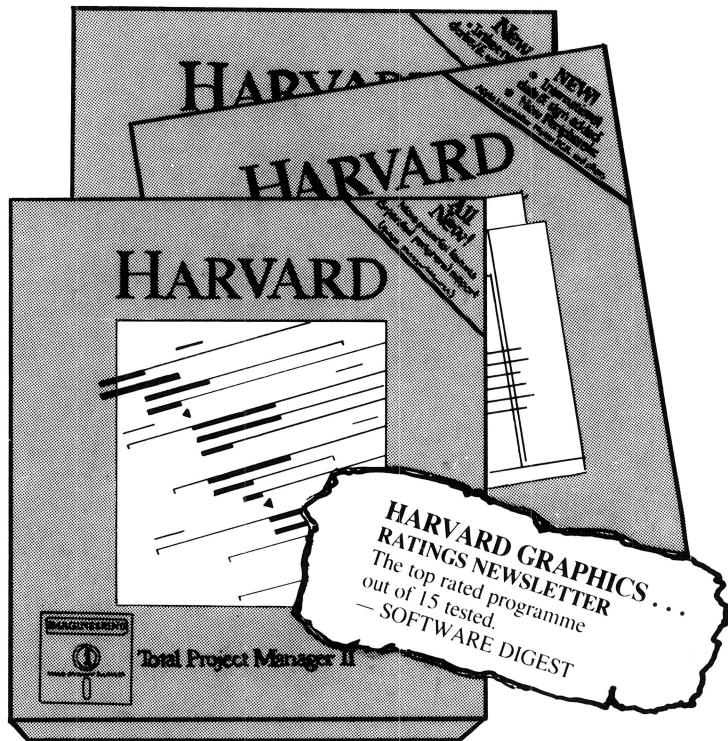
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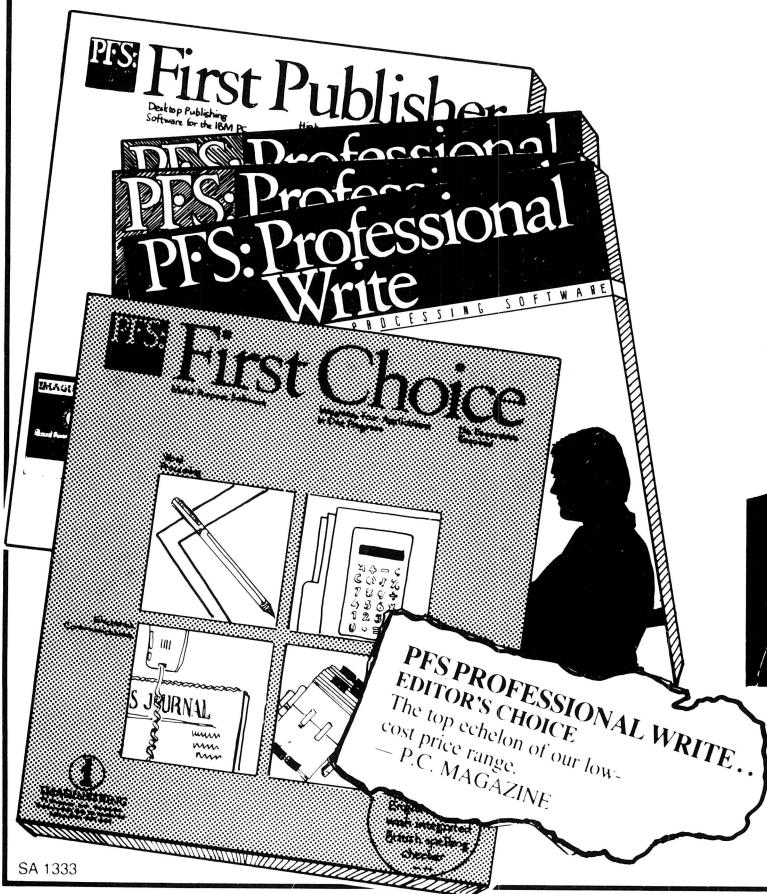
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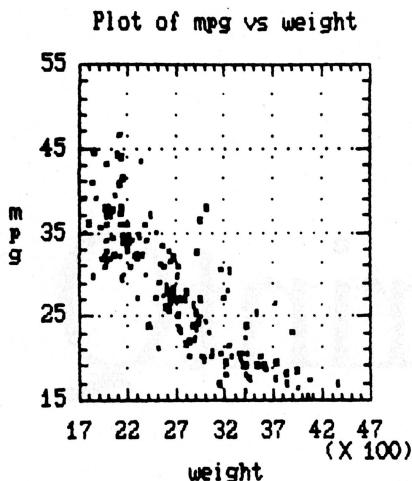


Figure 3. Another plotting possibility is the scatter plot — this one shows every entry of MPG against Weight from the sample file.

Examples

Advanced procedures such as Categorical Data Analysis, Multivariate Methods, Nonparametric Methods, Sampling and Experimental Design are also part of Statgraphics. Mathematical Functions include numerical differentiation, integration, root finding, solution of simultaneous equations, Eigenvalues, fast Fourier transforms, integer factorization, prime number generation and an LP solution using the simplex method.

These can be selected and used, or alternatively they can be integrated into an APL program (which is not included). The selections are comprehensive and would be particularly useful for a university or college course. The manual suggests that engineers, market analysts, business analysts, operational researchers, educators and students would benefit from the use of Statgraphics. As an engineer and educator for many years, I tried a number of the examples.

The first was to solve a set of simultaneous equations involving electrical values. These involved imaginary numbers, which are essential for alternating current — unfortunately the package can only solve for real numbers. The next example I tried was a plot of amplifier gain against frequency plotted on a logarithmic scale — this worked but the standard plot was only about a quarter of a normal printer sheet, this can be re-scaled to take up the whole page but also makes the lettering larger than necessary. The next example required 6 digit prime numbers, but as 5000

(4-digit) is the maximum available, the problem could not be solved. This was not surprising as this package tries to do so much, but there is always a limit.

Finally, I tried the tutorial examples, which are impressive. The data can be entered directly or from a file. Several data files are already in the package for use in the tutorials. The example used in the tutorial was of some (American) data on cars manufactured in the years 1978 to 1982. The file can be entered from scratch, or edited, joined, or deleted. The data files can even have missing values. The data can be imported and exported in ASCII format (and others). Table 1 is part of the 155 items in the cardata sample file which has been imported into a word processor and modified slightly.

Table 2 is the Statgraphics summary with a selection of variables. Notice that the size is 154 for MPG; as there was no data for one car, the value is missed for the purpose of calculations. The data sampled could have been any of the variables from the cardata file. Three of the possible graphs of MPG versus Frequency are shown in Figure 1. These can also be grouped together and shown as a three dimensional plot (Figure 2).

The graphs when printed are rather small, although this cuts down on printing time; they can be rescaled as necessary with the problem mentioned above. The three dimensional plots are a bit difficult to see on a print out, but are built up before your eyes on the screen. Another plotting possibility is the scatter plot in Figure 3 which shows every entry of MPG against Weight (proving the obvious). Pie charts can also be produced. Table 3 shows the comprehensive frequency tables that can be produced with the package (using the MPG data from cardata).

I have only sampled the statistics offering of Statgraphics — it's really quite a specialised (and sophisticated) package that can save days of calculations and scribbling. Couple that with the flexible methods of presenting the data, and this becomes a very useful package for anyone undertaking even a single, large statistical project. □

Product Details

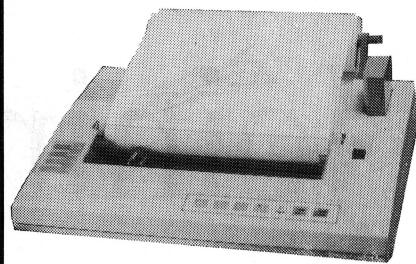
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Joining the PrintQ

Now that he's tested and tasted this mainframe type print spooler, John Hepworth wonders how he'll ever manage without it again!

THE VERY FIRST co-resident piece of software I ever used was a print spooler, long before I got my first copy of SideKick. It was a godsend, as I had at that time a very slow daisy-wheel printer which could take a couple of hours for a moderate sized document. That spooler set aside an area of RAM, intercepted characters bound for the parallel port, stored them in a queue in RAM and doled them out to the printer at the rate that it could put them onto paper. A bit like using a funnel to fill a bottle, taking cups of liquid at a time in the top and trickling them into the bottle at a constant rate via the spout.

That software spooler did have major disadvantages. The size of the buffer cut into available RAM, and at times the demands of the program for RAM meant only a limited size of buffer could be used. Another disadvantage was that the user had no control of the data once it had gone to the buffer — apart from dumping the complete contents of the buffer and starting again.

Other solutions have also been offered, including hardware buffers or spoolers. These are dedicated devices containing their own microprocessor and RAM. They are connected between the computer and the printer and intercept characters after they leave the computer and before they reach the printer — they also act like a funnel.

Mainframes have used other solutions,

basically taking the output from various programs, storing it temporarily on disk, and doling it out to the printer in a sequence controlled by the user. Not only does this give a buffer limited only by the available space on disk and not the available space in memory, but the user has a considerable amount of control of the process.

The user has complete control of document priority and can set the order in which they are printed differently to the order in which they were received by PrintQ.

PrintQ

A mainframe type spooler has now been released for IBM PCs and compatibles — PrintQ, and it's one of those essential programs for any PC user who has a frequent need to print anything. It can either be loaded manually or from a batch file, including the Autoexec.Bat file if desired and takes around 60 kilo-

bytes of memory for the resident control program.

PrintQ intercepts output bound for LPT1:, LPT2: or LPT3:. The intercepted output is spooled to disk and is then sent to LPT1:, LPT2:, LPT3:, COM1: or COM2:. The user has complete control of document priority and can set the order in which they are printed differently to the order in which they were received by PrintQ.

Documents can also be spooled to disk without being printed, the disk taken to another machine on which PrintQ is available and printed out there, without any of the primary software packages being on the second machine. PrintQ creates one or more printfiles on disk, and individual documents can be automatically deleted from a print file after they are sent to the printer or held in the print file for later manual deletion. Multiple copies can be printed of any document in the queue. The highest number which can be set is 255, but more than this can be printed by resetting the number of copies required after some have been printed.

Installation

PrintQ must be installed before being run as no executable file is on the distribution disk, apart from an install program. This very quickly and simply gets the user to enter name and address and inserts this onto the distribution disk. Working copies can now be installed on any number of disks, hard or floppy, by using other options in the install program. Pirating is very effectively discouraged without penalising legitimate users as the name and address of the registered owner appears on the opening message screen whenever a copy is run.

Users can ask the install program to add a line to their Autoexec.Bat file to auto-

matically invoke PrintQ, and if this is done the previous version of Autoexec.Bat is renamed Autoexec.Bak. No change to the Config.Sys file is required.

Documentation

A single page QuickStart instruction is tucked in with the disk and allows users to get PrintQ up and running for the first time without needing to read the rest of the manual. At this time, PrintQ will intercept output bound for LPT1:, spool it to disk, and dole it out to LPT1: as required, using the factory default settings.

PrintQ has far more ability than this, and uses a simple menu system to set defaults and control progress of printing. While little need exists to use the excellent 112 page manual other than to find explanations of some of the bells and whistles, careful perusal is still well worthwhile.

Running PrintQ

As mentioned above, PrintQ can be started manually by typing PrintQ on the DOS command line, or by including a line in an Autoexec.Bat or other batch file. If a copy of PrintQ is already loaded it is found and a second copy is not loaded. A welcome message is displayed for around 5 seconds, and then is replaced with the DOS prompt.

Any output for the printer is now intercepted by PrintQ and spooled to a single printfile in a PRINTQ subdirectory. Each of the several documents, which could be graphics output from a drawing or graphics package as well as text or other character based files, are compressed and combined into one file. The user can specify additional queue files, and can select which is to be used at any time.

Menu

Control of PrintQ is made by pressing Ctrl-Alt-P to pop up the PrintQ menu. At the top appears the name of the print queue in use. The readiness of the printer and the queue is also shown.

Figure 1 shows the PrintQ status display and a list of the print jobs in the queue file. Each of the print jobs has an identification number, which appears in the left column. In the other columns appear the status for each print job — Printing, Open, Printing and Open, Ready or Hold. While most of these are self explanatory, Open means that a print job can still accept data from the application program.

The next column shows the name of the application program which generated the print job, or a 24 character user defined

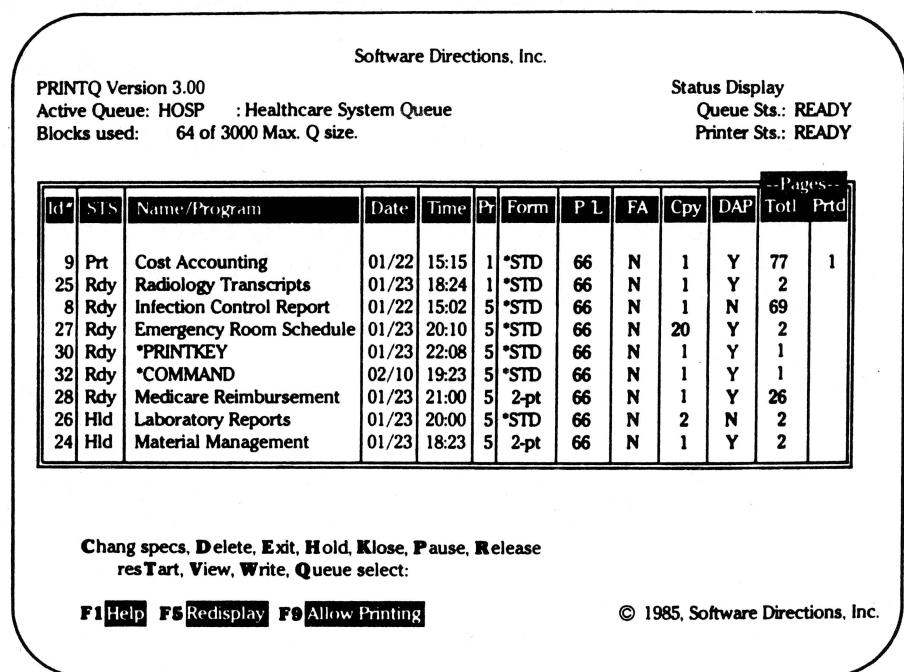


Figure 1. The PrintQ status display and a list of print jobs in the queue file. A detailed explanation is given in the text.

message or name for the job. The date and time that the job was received on the queue is shown in columns 4 and 5.

The priority of the print job can be set from 1 to 9, with the default at 5. The highest priority is 1, with 9 the lowest and jobs are sent from the queue to the printer in priority order. Priority can be changed for an individual print job at any time before it is printed. Likewise, if various forms are used, the form for each job can be specified and jobs will be printed as far as possible to minimise the changing of stationery. Priority and forms details are shown in columns 6 and 7.

Column 8 shows the forms length in lines, while column 9 shows the forms alignment option. Users can be prompted to align forms at the top of each page for manual sheet feed, at the top of each job for fanfold and for jobs to be printed one after the other without alignment by the operator between jobs.

Column 10 shows the number of copies of each job to be printed, column 11 if the job is to be deleted after printing or held for later manual deletion, and the final two columns show the number of pages in each job and the number of pages to be printed.

From the menu, pressing a single key allows one to Change specifications, Delete,

Exit to the application program, Hold, Close a file, Pause, Release, resTart, View, Write and Queue select. Of these, by far the most powerful is Change specifications. This brings up three more options, allowing alteration of the default specifications, the specifications for individual print jobs already in the queue and to the printer port specifications.

Conclusion

PrintQ is another of those near essential programs. It is far more flexible and capacious than a RAM spooler, and more convenient and controllable than an external hardware spooler. It can be run 'blind' from the Quickstart and spool without intervention, or the user can have full control.

Having tested and tasted PrintQ, I doubt if I will ever manage to do without it again. □

Product Details

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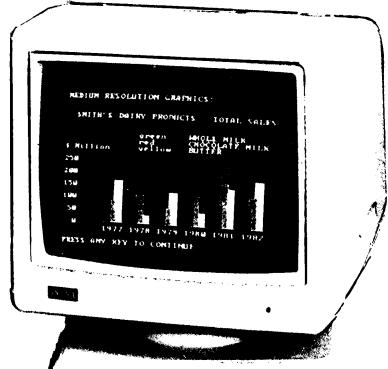
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Letter Magic

A Wordprocessor plus a Database!

This is the time of the year we all try to catch up on our letter writing — Ewart Stronach has found a package that almost makes it easy!

MOST REVIEWERS run 2.23 kilometers from a request to review a wordprocessor. The learning curve is 99 per cent up hill and the research time occludes the reward. We all have our favourite wordprocessors, some have more than one. I use at least two regularly; one for normal text writing and editing, and another for dBase programming for its better ability to 'cut and paste' copy. Here, I feel, I have put my finger on the very nub of the conundrum.

Each wordprocessor has its good features. None is perfect for every application. It makes great sense to tailor your wordprocessor to *your* needs, rather than re-design your office or business to suit a mere computer program!

If your primary need for a wordprocessor is letter writing, then Letter Magic is worth your attention, regardless of the wordprocessor you currently use.

Letter Magic was written by Dr Geoff Lewis, who makes his home in Sydney. He comes highly recommended for his brilliant lateral thinking. In 1965 he was selected, as a sixteen year old lad, by IBM to demonstrate their new System 360. He was selected because of a sensational score of 150 out of a possible 120 in a university test for mathematical aptitude. He was awarded the extra points for exceptional problem solving ability and in the next ten years, nobody got more than 75 marks. His problem solving ability is demonstrated in this software package.

By following a well written tutorial guide, you will learn to extend the features of Letter Magic to the stage that most of your standard letter writing, labelling and direct mail chores will fade into the background.

Powerful

Letter Magic combines the power of a dedicated wordprocessor with that of a database. That means, in plain talk, that not only will Letter Magic allow the composition of your letters onscreen for editing and tidying up before printing, but stores a lot of information that regular let-

ter writers need. A large file of customers can be built with sufficient information about them to classify them into groups for automatic letter generation.

The information is held in such a manner that writing the usual opening of a business letter is reduced to only a couple of key strokes at the computer. Your letter is dated, addressed and the appropriate salutation is typed in automatically. The letter may then be typed in the normal manner and another simple key sequence ends the letter in a pre-determined format. A label for the envelope is prepared with a further three key strokes.

This is an extremely simplistic overview of a very capable and complex program. By following a well written tutorial guide, you will learn to extend the features of Letter Magic to the stage that most of your standard letter writing, labelling and direct mail chores will fade into the background.

Regularly used letter forms may be composed and stored on disk. Such a letter may be recalled and printed in full by a simple sequence of keystrokes. After the title page, you are offered a series of options. Selecting O for One-Name Activities produces a second menu from which you press S to select your prospective pen pal. Having found your address, L indicates your intention to drop him/her a line and the screen will clear to a wordprocessor with the name, address and salutation already in place. The right margin, defaulting at 66 columns, is shown as a line drawn down the right hand side of the screen with line numbers indicated every five lines.

The wordprocessor is supplied with a plentiful amount of onscreen help which may be reduced as you gain proficiency. The bottom four lines of the screen contain instructions for keys used in conjunc-

tion with the Control key and the bottom line details the Function key uses. Many of the commands offered would be familiar to almost anyone accustomed to word-processing and even to a novice they are self explanatory. Some other commands available give a hint as to the additional power of Letter Magic over more conventional systems.

The help screen offers the instruction Jump To Mark, for the F5 key. This function allows you to write a standard letter, prefixing any word which is to be regularly changed in an otherwise standard document, with the characters @]. For instance, in a letter thanking someone for a payment, the words 'Thank you for your @]cheque' might me placed in the text. When this letter was called up by Letter Magic, the text would appear on screen with the cursor already placed at the word 'cheque', ready for you to alter it to 'cash' if that were the case. Any number of @] symbols may be placed in a text, and the F5 key will move your cursor on to the next one. 'Ah-ha' the cry goes up: 'What if I wanted to replace the word 'cheque' with the words 'belated and long overdue payment', wouldn't that rather spoil my layout?' Panic not, Dr Lewis has a magic fix. Simply hit F6, and Letter Magic will, alone and unaided, re-format the entire text to accommodate your verbosity, and jump to the next marker.

Database

Letter Magic can also look at your name and address files and produce a report from them. The information may be sorted into groups based on the categories you selected, and printed out with as much of the data as you require. From a club membership listing, for instance, all the members who had not paid their dues, could be listed or from a business group, all those in a certain post code area could be listed.

The database section of Letter Magic is set for the normal fields or entries of name, contact, position, salutation, address and telephone. There are an additional four alphabetic fields and two date fields which may be re-named to suit your personal application. With 36 possible categories in which to classify your customers, members, friends and so on, there is little chance of running out of variations in a normal application.

So much for the normal application of a clever combination of database and word-processor. I have seen others with nearly as much power, but what makes Letter

Lewis LETTER MAGIC		ONE-NAME ACTIVITIES	
Name	:	:	:
Contact	:	:	:
Position	:	:	:
Salutation	:	:	:
Address	:	:	:
Telephone	:	:	:
Computer	:	:	:
PAY-PACK Version	:	:	:
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LETTER MAGIC Version:	:	:	:
Maintenance Due	:/	Evaluation by	:/
Remarks			
Enter 'Smith;John;Mr' for 'Mr John Smith' This will sort as 'SMITH' and print as 'Mr John Smith' Use of the pivot ',' only applies to name field.			

Figure 1. Letter Magic's database screen — Selecting O from the main menu, produces a second menu from which you choose S to select a single addressee from the database. L indicates your intention to write a letter — the screen then clears to the wordprocessor with the name, address and salutation already in place.

June 13th, 1987

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CONTROL:	A=WordLeft	B=ReformPara	C=NextScrn	D=CharRight	E=LineUp
F=WordRight	G=DelChar	I=Tab	J=JumpToMark	K=M-O-R-E	L=H-E-L-P
P=Print	Q=M-O-R-E	R=PrevScrn	S=CharLeft	T=DelWord	V=InsertOn
W=ScrollDown	X=LineDown	Y=DelLine	Z=ScrollUp	DEL=DelChar	ESC=Exit

1=Scrn 2=Adv 3=Endng 4=Print 5=Jump 6=Returm 7=Endln 8=Endln 9=Endln 10=Endln

Figure 2. The wordprocessor screen with the maximum help level set.

Magic leap out from the crowd is a series of very clever programming techniques. A brief aside to the initiated here — Letter Magic was written entirely in Basic, including the wordprocessor!

All screen handling is from the code with no ROM calls, and the speed at which it runs will astound you.

All screen handling is from the code with no ROM calls, and the speed at which it runs will astound you. The special attributes of Letter Magic are deceptively simple. When you enter a name in the first blank space, or field, of the database, the semi-colon character may be used as a 'pivot'. This means that a name entered as 'Smith; Mr John' will be searched for by

the database under Smith, but printed on the letter as Mr John Smith. This speeds up the search time considerably. The @J feature I mentioned earlier takes a lot of effort out of similar letter forms and a further ability to store often used words or phrases for recall with a single key stroke is also clever. A complete ending to your letter may also be stored for single key entry and this brings us to another piece of Dr Lewis' lateral thinking.

When you part with your money for Letter Magic, your copy is encoded with your name or company name. As in 99.9 per cent of all letters, you or your company name appears, Letter Magic looks at the letter for such a name. If it does not appear, it assumes you are not the rightful owner of the software and refuses to print! Take that, you pirate . . . There is a plus to this: if you accidentally forget to end a letter properly (remember this is only a single keystroke), Letter Magic will use this 'lack of name' function to remind you. There is a way around this for rightful owners who wish to send an anonymous letter to a creditor, but you'll have to buy the program to find it.

In summary, Letter Magic would be a very worthwhile addition to the software library of any small firm and many large ones. The time saving ability alone would warrant the cost. An operator familiar with wordprocessing would learn to run Letter Magic in a day. It could stand alone as a small database in many applications and its search speed rivals many much more complex programs. Why buy a very expensive piece of software with features and functions you will never use when this one is available? □

Product Details

Product: Letter Magic

From: Custom-Made Software, PO Box 507, Randwick, Sydney 2031 NSW (02) 399 8566.

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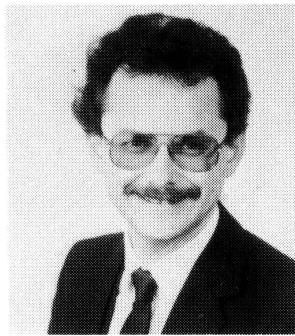
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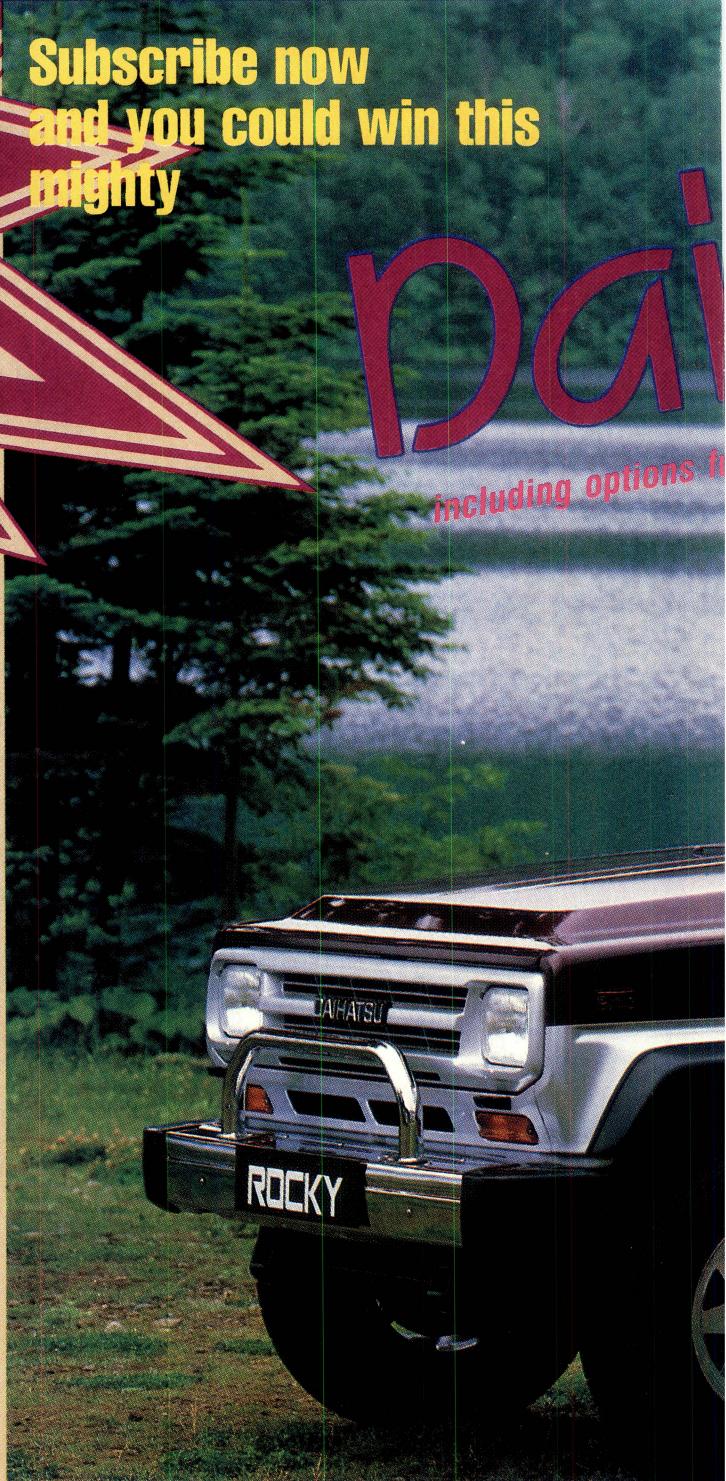
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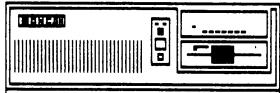
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J. W. Penfold

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R. A. Penfold

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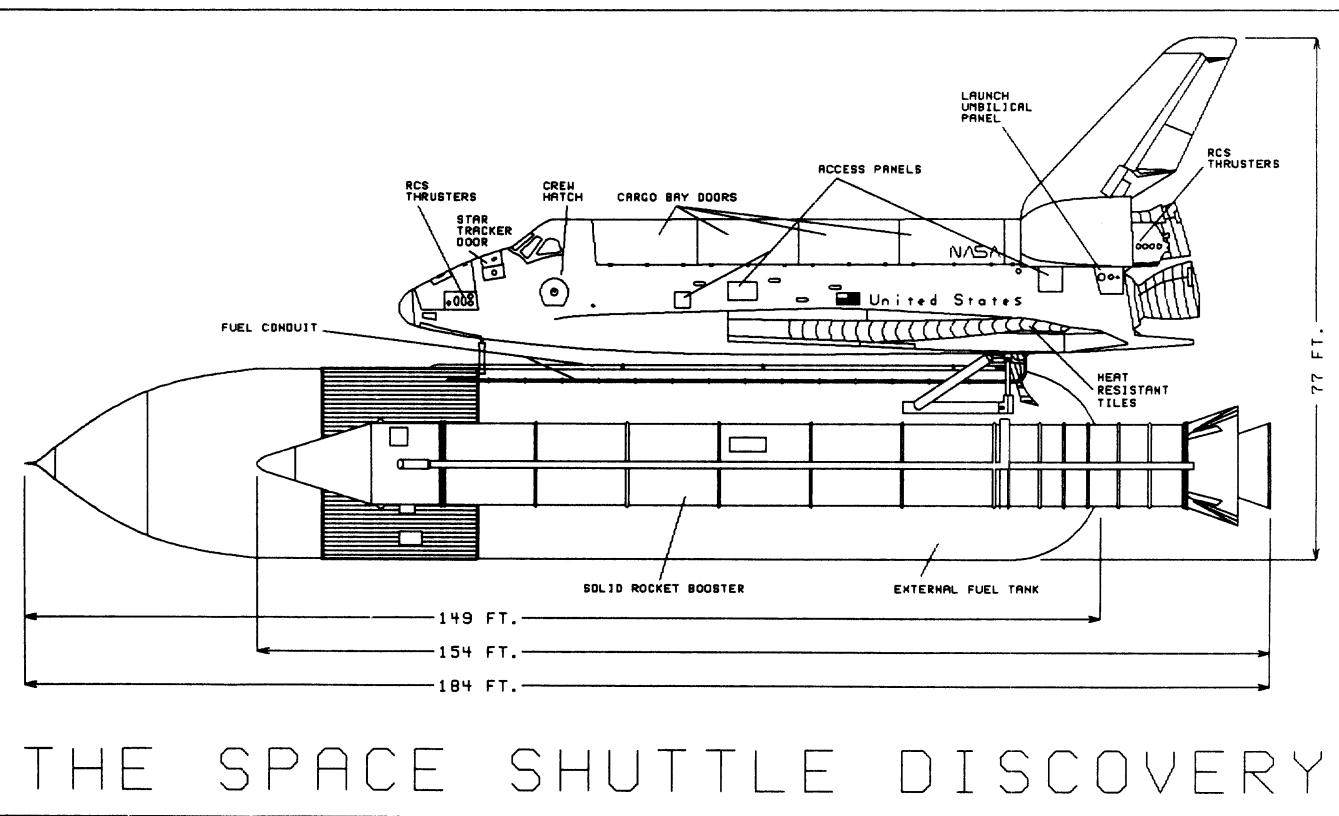
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PRODESIGN II

A serious contender in the Cad market

Prodesign may not (yet) be a competitor for the likes of AutoCad and Versacad, but as David Chatwin found, it's still ideal for a variety of applications.

0 POINTS DISTANCE: 0.000 ANGLE: 0.0 DX: 0.000 DY: 0.000



THE SPACE SHUTTLE DISCOVERY

Figure 1. This is a typical example of a screen from Prodesign II. The status line across the top of the Prodesign screen can be set to one of three formats, depending on your requirements — one shows the number of points set plus the current layer and zoom factor; a second shows the points set plus the distance and angle of the cursor from the last point; the third shows the points set plus the X and Y co-ordinates of the cursor. The drawing above has the second format set — note that it also shows the horizontal and vertical distance from the cursor to the last point.

CAD PACKAGES all seem to have a band of loyal followers who rubbish the opposition, whilst praising their own choice highly. So, those of you who are confirmed 'xyz' Cad users, please read this review with an open mind. I should say right now that Prodesign II is not a serious competitor for the likes of AutoCad and Versacad. It is however, an excellent product for the market it is aimed at.

Installation

Prodesign II is supplied on four disks. The user has a choice of two program disks — one for those systems with a 8087/80287 co-processor, and one for those without. The third disk contains some utilities for importing and exporting files and the setup program. The fourth disk contains the printing utility and what appears to be the same utilities as on the third disk.

Installation is incredibly easy (even for the likes of me). Full instructions are supplied for setting up both hard and floppy disk systems. It's simply a matter of copying the disks and running the SETUP program. This is a menu driven system that guides you through picking your printer and/or plotter, your pointing device (mouse or digitiser) and the type of screen you are using. The range of choices for each is huge, and if you can't find one to suit your equipment, then you're very hard to please.

Hardware

The range of hardware supported by Prodesign II is enormous. It will even support an ordinary PC with CGA, no mouse and twin floppies. However, to use it effectively you would need at least EGA graphics, a hard disk, a mouse (or a digitiser if you are really serious), and a good graphics printer (or a 6 or 8 pen plotter for the serious). A minimum of 12 kilobytes of RAM is needed, but 640 Kbyte is recommended.

For those of us with just a standard PC, Prodesign II makes the best of things, and even splits the drawing window into four segments, only one of which is displayed on the screen at a time. This goes a long way towards solving the resolution and size restrictions of an ordinary CGA screen and adapter.

Use

Prodesign II is not as easy to use as the likes of Paintbrush or similar products (but then, the results are a whole lot better than most of those other packages).

The latest version offers a menu which



Figure 2. Characters can be entered in an almost limitless number of ways, in a choice of three character fonts. There are a number of options available for text entry.

lists all your available choices. For the experienced user (or those who think they are), the menu can be switched off. This gives you a bit extra drawing space, which is sometimes useful. The menu is very easy to use and it will even prompt you for the information you need to supply, such as zoom factors and drawing points.

For those of us who scoff at menu driven systems, the writers have included some drawing instructions which are not available from the keyboard, just to make sure you use it. There are a total of 92 drawing commands available from the menu, as against the 65 available using the keyboard.

The ability to overlay an existing drawing, without adding it to the current one is certainly very useful, as is the ability to specify up to 20 layers in a drawing.

I found Prodesign II relatively easy to learn, the best way being to start using it. As you find yourself up against a new task, just look in the book and you will be sure to find a way to solve it. The manual also includes a tutorial during which you draw a car and then modify it. This is not a bad starting point, but you don't really grasp the full power of this package until you sit down and use it in anger.

Prodesign II contains all the commands that one would usually expect in a Cad package. The number of different drawing parameters that the user has control over can be a little overwhelming, but with experience they are all very useful.

A typical screen is shown in Figure 1. The status line across the top of the screen can be changed to show different information, depending on what your requirements are.

The dimensioning facilities available within Prodesign II are quite good and certainly suitable for its intended market. It is also worth noting that Prodesign II will work (and dimension) in both imperial and metric units, although changing from one to the other involves running the SETUP program again.

The ability to overlay an existing draw-

ing, without adding it to the current one is certainly very useful, as is the ability to specify up to 20 layers in a drawing.

Users also have the facility to define standard items as 'blocks', which can be stored on disk and retrieved later. These blocks can also be altered in a number of ways, duplicated, copied, inserted and deleted.

Text entry is a lot of fun, as the characters can be entered in an almost limitless number of ways, in a choice of three character fonts. Extra character fonts can be created by the user and there is an optional Character Font Editor available. Figure 2 shows just a few of the options available for text entry, using just the one font.

The help facilities within the program are rudimentary and consist simply of a listing of the key commands, with a half line description of each. If you need any detail on how to use a command — then it's back to the manual.

The Oops! and Undo commands are a welcome sight, especially for klutzies like myself who invariably realise that they have done the wrong thing just as 30 minutes work disappears from the screen.

The output facilities are excellent, with the ability to output to a dot matrix printer, or to a plotter. If you want colour output, you must use a plotter, as the package does not support colour printers. The printer output is very good, with three degrees of output density available — Very High Density produces a print which is almost indistinguishable from a plotted output, but be warned — it's slow; Low Density is handy for quickly producing a rough draft of a drawing, but it's not presentation quality. Figures 1 and 2 were both produced using the Very High Density printing option, on a 9-pin dot matrix printer. The output can be scaled so that it's very easy to produce finished drawings that conform to a standard scale (like 1:100).

An annoying feature is that the printing program is separate to the drawing program. This means that you must save your drawing to disk before attempting to print it. If you don't save it, then it will be lost. The same is not true for the plotting routine, which will only plot the drawing currently displayed.

There are two programs provided for exporting and importing files from other packages, including the ability to import a Hewlett-Packard plotter file.

The manual is certainly as good as most, but it looks a bit amateurish in the way it is put together. It does have its redeeming features, such as full listings of

the file formats used by Prodesign II for storing drawings, system details and printer and plotter drivers. This is very useful for closet hackers (like myself), especially if you have some non-standard hardware you want to use.

In summary, Prodesign II strikes me as a package that might be suffering a bit of an identity crisis. It seems aimed at the lower level market, but is trying to offer the same sort of facilities as the big boys. It is ideally suited to users that think they need a Cad package, but aren't quite sure, or those people who would like to learn more about Cad packages. It would also be very useful to those who have a need for Cad facilities, but can't afford the likes of AutoCad. In these areas it would have to be the best value for money Cad package on the market today. I have been using Prodesign for about a year now, and have yet to stretch it to its limits. The type of work I use it for is the drawing of (simple) building plans, manpower schedules and various charts. For that type of work it is ideal.

All in all, I like Prodesign II. It is relatively easy to use, offers quite powerful drawing facilities, and is cheap. The range of hardware supported is excellent, as are the options available to the user to 'customise' the package to suit themselves.

By the time you read this, there will be a new version of Prodesign II available, which will boast a number of enhancements. These include: additional fonts, extended memory support, symbol libraries as standard (not optional), image to vector scanning capability (for those who have an image scanner), AutoCad translation and materials bill of materials as standard, optional 3D solid object modelling and OS/2 support.

If the new version is as good as it sounds then it may well be a serious rival for the likes of AutoCad and Versacad. If it is priced as aggressively as the current version it would have to be unbeatable value for most of us who require a Cad package. □

Product Details

Product: Prodesign II Version 2.5

From: American Small Business

Distributor: Software Suppliers

7 Avon Rd, North Ryde 2113 NSW
(02) 888 1955.

Price: \$599 taxed. External support is available for \$100 the first year and \$50 each consecutive year. Several optional support programs are also available for the basic package.

Rod Irving Electronics

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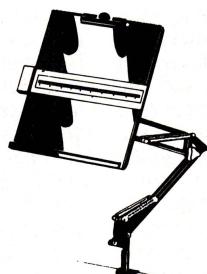
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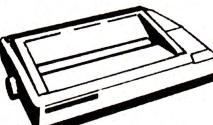
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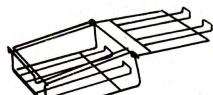
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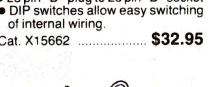
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CHRISTMAS PRODUCTS

Knowing how hard it can be to chose the right gift for computer enthusiasts, we've chosen our New Products this month to help with that dilemma. There are two categories — For the Stocking (under \$100) and Under the Tree (over \$100). Merry Christmas!

For the Stocking Software

Portex

IQ

Phone: (03) 222 2288

Price: Not supplied

Everybody needs a diary to organise their busy schedules. It makes it a lot easier for the computer enthusiast if the diary is computerised — much easier to 'relate' to than a blank page in a book! IQ has released Portex, a computerised, leather bound, pocket size looseleaf organiser.

It comes with a ring binder that includes section dividers, a

function key template and a comprehensive user manual. Portex features a full suite of IBM PC or compatible software for diary organisation and production, address book filing and output, word processing and selective mail merging. There is an 80,000 word spelling checker and comprehensive help screens at the touch of a button. Appointments fall automatically into date and time order. The address list can also be sorted automatically. Portex is designed as a serious business tool to provide valuable information to hand, yet secure on the PC. Portable Portex is also available.

SAGE

Sage PC Learning Software

Personal Computer Software

Phone: (02) 923 2899

Price: See below

This may be one present you can buy for yourself if you want to learn how to effectively use Sage software packages. The topics covered include data base (for Sage Retrieve), accounting (for Sage Accounts), wordprocessing (for Sage PC Write) and a course covering basic knowledge for using a PC, called PC Starter. Each product costs \$89 taxed and will run on any IBM or close compatible.



Stickybear Series

Edsoft

Phone: (03) 878 4899

Price: See below

Are your kids constantly playing games on the computer? Why not give them a game or two that

they can learn from. Edsoft is the distributor of the Stickybear range of educational software for the Apple IIe, IIc, GS and the Commodore C64. Stickybear ABC teaches children aged 3 to 6 the alphabet, as well as familiarity with computers. Colour screen pictures and sound help children recognise each letter. Another program for the 3 to 6 range is Stickybear Numbers. Using colourful groups of trucks, ducks, planes and other images, more than 250 possible picture combinations reinforce number and counting skills. Children in the 6 to 9 age group may enjoy Stickybear Spellgrabber which helps build vocabulary and spelling skills. Adjustable game levels are featured to match each player's skills.

Other programs in the series include Stickybear Typing, a typing instruction program and Stickybear Town Builder, which helps with map reading skills (great fun for the Cub Scout or Brownie in the family). The Apple versions cost \$68.35 each, while the Commodore versions cost \$56.95.

Touch

Logistics Software

Phone: (03) 299 1308

Price: \$85

If you use a computer you need to know how to type — it makes life just that little bit easier. Logistics has released Touch, the ideal present for the two fingered typist or the person who just wants to learn typing. Touch is a keyboard and touch typing course for education, business and home users. The program provides a full touch typing course of 49 exercises in a developmental sequence. Touch features an on-screen keyboard and on-screen tutorials. Student performance records are saved and printed out. A screen editor which allows for the creation and modification of tests and exercises.

WS Help

Magic Box Software

Phone: (047) 58 6407

Price: \$89 untaxed

So you got WordStar last Christ-

mas but are still not as proficient as you would like to be? WS Help is a memory resident help program for WordStar with versions available for WordStar 3.xx and WordStar 4.00; it covers every command in WordStar. The user simply presses a hot key if unsure about how to carry out a given task. The hot key calls up a brief description of the command. If further help is required, pressing the PgDn key brings up several screens of detailed, step-by-step explanation and tips. If the user leaves WS Help before completing a help topic, the same topic is called the next time the hot key is pressed. Compaction and decompaction techniques have been used to squeeze the help text into the minimum disk space on floppy disk-only systems. WS Help runs on IBM PCs, XT's, ATs and compatibles versions are available for NEC machines and the Panafacom Duet 16. The program will run alongside Sidekick, Metro and other TSR software.

Peripherals



NetComm Products

NetComm

Phone: (02) 888 5533

Price: See below

NetComm offers a range of products for users of modems, many of them low in price. The company has a range of Apple software for communications, including Apple Async 2. This software package will enable an Apple II+, IIe or IIc computer to communicate with ASCII text data services such as bulletin boards and databases. It supports both Apple and NetComm modems and is priced at \$55.86 (taxed). IBM PC users are not left

CHRISTMAS PRODUCTS

out, as NetComm has the NetComm Program which is an economical communications package for NetComm SmartModems and AutoModems.

NetComm also offers a number of less expensive accessories. A range of telephones are offered, including the Telephone 7015 which has pushbutton dialling, last number redial and can be plugged into a standard Telecom socket or the back of your NetComm modem. It comes sup-

plied with a 2 meter coil cord and an EM904 adaptor. Priced at \$68.44 (taxed). The Telephone BSP1 has similar features, comes with a 1 meter coil cord and is and is priced at \$37.95 (taxed). Three adapters are offered and range in price from \$15.34 to \$16.52 (taxed). A number of modem cables for IBM PCs and compatibles as well as Apple machines are also available. All cables under \$100 are priced at \$57.82 (taxed).

Miscellaneous

Andronicus Coffee

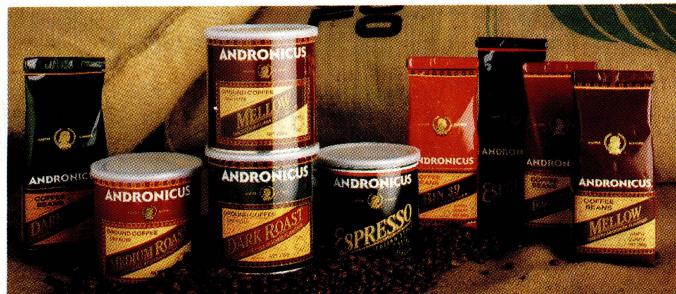
Andronicus

Phone: (02) 680 1133

Price: Definitely under \$100

It's midnight, you've had a hard day at work and you came home to leisurely sit down at the computer. As happens most nights,

strong to stay at the computer rather than hit the sack. All you need is that perk to keep you going...aha...a cup of coffee! Not just any coffee will do. Wouldn't it be nice if someone bought you a supply of coffee coffee for Christmas? Andronicus offers a range of coffee to appeal to all tastes. If you are a connoisseur, why not try Dark Roast, a strong brew with just that touch



you have only got halfway through writing that program and you're feeling a little bit tired. Like most computer enthusiasts (no, we do not consider you a freak), the temptation is

of bitterness. Maybe a rich, high-roasted blend such as Espresso is more to your liking? Or there is Medium, a medium roasted coffee to linger over.

Australian Educational Software Catalog

Barson Computers

Phone: (02) 888 9444

or (03) 419 3033

Price: Free

A 130 page catalog of education software for Australian primary, secondary and tertiary institutions using the BBC system is now available from Barsons Computers. More than 700 software programs are listed, each with a brief description of the program, grade level, format and suppliers. The catalog is available free to people involved in the education field. Just phone Barsons and ask to be put on the mailing list.

DOSCARD

Packet Press

Price: \$3 postage paid

The plastic society we live in has finally come up with something that any computer enthusiast would find more useful than a credit card — the DOSCARD DOS reference card. The DOSCARD is a plastic, credit card sized reference card that lists nearly all parameters for almost all PC DOS commands. It can be used in conjunction with any level of DOS through to Version 3.2. Short descriptions of each DOS command parameter and the parameters for the CONFIG-SYS file are featured.

Although not a replacement

for the DOS manual, it is a handy alternative when a user knows the proper command but does not recall the correct parameter. The ideal present for the Computer Using Young Urban Professional (Cuyuppie) in your life. Write to Packet Press, 14704 Seneca Castle Ct, Gaithersburg MD 20878 USA.

Latest Computer Titles

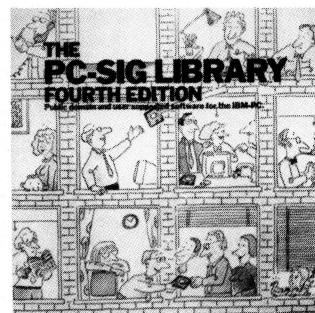
Penguin Books

Phone: (03) 871 2400

Price: See below

A gift of words (nice ones in a book form) could be one present you could give your favourite enthusiast. The choice of subject matter is, of course, computers and Penguin Books has released six new computer titles: the third edition of *Using Wordperfect* is now available as well as *dBase III+ Programmers Library*, *Tricks of the MS-DOS Masters*, *C Programmer's Guide to Serial Communications*, *C Primer Plus (Revised)* and *Unix Text Processing*.

Easier to wrap than a computer but guaranteed to give just as much enjoyment. These six books are priced from \$42.95 to \$55.95.



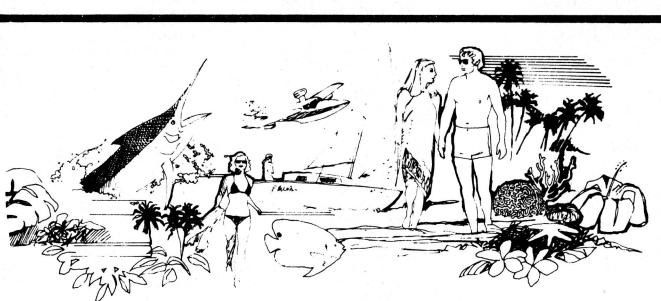
PC-SIG Library

Manaccomm Pty Ltd

Phone: (02) 875 3538

Price: See below

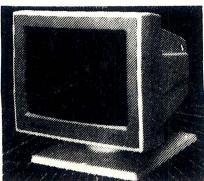
In the stocking you may find your membership in the PC-SIG Library as well as the fourth edition of the PC-SIG Library Directory. This directory contains the



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So does our Software!
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**CYPHER RESEARCH LABS.
P.O. BOX 4, MACHANS BEACH 4871
PHONE: 55 9138**

**SAMSUNG 12'' FLAT SCREEN COMPOSITE MONITOR****FEATURES....**

- Flat, high contrast, non-glare screen
- High resolution, 80 or 40 character display
- Tilt/swivel base
- Compatible with Apple® and IBM® colour composite signal

SPECIFICATIONS....

Picture tube: 12" diagonal and 90° deflection

Phosphor: Available in Green or Amber

Video input signal: Composite Signal Sync Positive/Negative Sync

Level: 0.5-2.0Vp-p

Impedance: 75ohm

Scanning frequency:

Horizontal: 15.734 KHz + - 0.1%

Vertical: 50-60Hz

Video bandwidth: 20MHz

Active display area:

216(H) x 160(V)mm

Display character:

80 character x 24 rows.

Input terminal: RCA Phono Jack.

Controls:

• Outside: Power Switch, Contrast, Brightness, H-Shift, V-Size.

• Inside: H-Width, H/V hold, H/V linearity, Focus.

Power supply: 110/120V 60Hz.

220-240V 50Hz

Dimensions:

310(W) x 307(H) x 300(L)mm

Weight: 8.1 Kg

Shipping weight: 9.6 Kg

Cat. No. Description Price
X14510 (GREEN) \$189
X14512 (AMBER) \$189

**SAMSUNG 12" 20MHz COMPOSITE MONITOR ONLY \$149****FEATURES....**

- High contrast, non-glare screen
- High resolution, 80 or 40 character display

SPECIFICATIONS....

Picture tube: 12" diagonal and 90° deflection

Phosphor: Available in Green or Amber

Video input signal: Composite Signal Sync Positive/Negative Sync

Level: 0.5-2.0Vp-p

Impedance: 75ohm

Scanning frequency:

Horizontal: 15.734 KHz + - 0.1%

Vertical: 50-60Hz

Video bandwidth: 20MHz

Active display area:

216(H) x 160(V)mm

Display character:

80 characters x 24 rows.

Input terminal: RCA Phono Jack.

Controls:

• Outside: Power Switch, Contrast, Brightness, H-Shift, V-Size.

• Inside: H-Width, H/V hold, H/V linearity, Focus.

Power supply: 110/120V 60Hz.

220-240V 50Hz

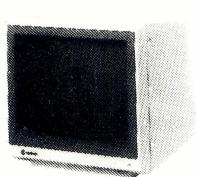
Dimensions:

310(W) x 307(H) x 300(L)mm

Weight: 8.1 Kg

Shipping weight: 9.6 Kg

Cat. No. Description Price
X14514 (GREEN) \$149
X14516 (AMBER) \$149

**SAMSUNG 12" TTL/COMPOSITE MONITOR****FEATURES....**

- At last a monitor with both TTL and Composite modes!
- High contrast, non-glare screen
- High resolution, 80 or 40 character display
- Swivel/Tilt base

SPECIFICATIONS....

Picture tube: 12" diagonal and 90° deflection

Phosphor: Green (P42)

Video input signal: Composite/TTL Switchable

Polarity: Negative/Positive

Level: 0.5-2.0Vp-p/0.4-1.5Vp-p

Impedance: 75ohm, more than 6.8K ohm

Scanning frequency:

Horizontal: 15.75 KHz + - 0.1%

Vertical: 50Hz + - 0.5%

Active display area:

216(H) x 160(V)mm

Display character:

80 characters x 25 rows

Input terminal: Phono Pin Jack, 9-pin D-Sub Connector

Controls:

• Outside: Power Switch, Contrast, Brightness, Signal Select, V-Hold, V-Size.

• Inside: H-Width, H/V linearity, Focus, H/V-Shift.

Power supply: 110/120V 60Hz.

220-240V 50Hz

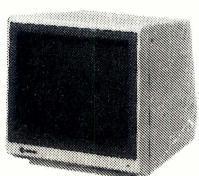
Dimensions:

308(W) x 297(H) x 307(L)mm

Weight: 7.3 Kg

Shipping weight: 8.3 Kg

Cat. No. Description Price
X14509 (GREEN) \$179

**SAMSUNG TTL 12" MONITOR**

- Excellent contrast, non-glare screen
- Excellent value for money!

SPECIFICATIONS:

Picture tube: 12" diagonal 90° deflection

Mode: TTL

TTL input signal:

Polarity: TTL Positive Level: 4V p-p + - 1.5V

Impedance: 75ohm

Video bandwidth: 16MHz (-3dB)

Scanning frequency:

Horizontal: 14.32 + - 0.1KHz

Vertical: 50Hz + - 0.5%

Active display area:

216(H) x 160(V)mm

Display characters:

80 characters x 25 lines

Input connector: 25 pin connector

Controls:

Front: Power ON/OFF, Contrast, Rear: V-Hold, V-Size, Brightness, Internal: Vertical Linearity, Horizontal Linearity, Horizontal Width, Focus.

Power supply: 110/120V 60Hz.

220-240V 50Hz

Dimensions:

308(W) x 297(H) x 307(L)mm

Weight: 7.3 Kg

Shipping weight: 8.3 Kg

Cat. No. Description Price
X14500 (GREEN) \$189
X14502 (AMBER) \$189

**SENDA DATA DIRECT CONNECT MODEM**

- CCITT V21 300 baud full duplex
- CCITT V23 1200/75
- Bell 103 300 Full duplex
- Bell 202 1200 Half duplex
- Auto answer
- LED display for Power, TX, RX, CD
- AC power adaptor included
- DB25 pin connector
- Telecom Approval N.C.C83/37/1045

Cat. X19120 \$295

(SOFTWARE FOR VIATEL \$95)

**SWIVEL BASE**

Make life easier with these quality, swivel and tilt bases, complete with rubber fittings!

Cat. D11100 Special, \$19.95

**"NO BRAND" DISKS!!**

Now you can buy absolute top quality disks that are also the cheapest in Australia! They even come with a 5 year guarantee, which indicates the quality of these disks. So why pay 2-3 times the price for the same quality?

Bulk packed, D/S/D/D without boxes, or brand name, just their white paper jacket, index labels and write protects.

5 1/4" D/S "NO BRAND" DISKS FROM \$0.85 EACH!!

1-9 PACKS 10+ PACKS 100+ PACKS
\$10 ea **\$9 ea** **\$8.50 ea**

(SEND \$2 FOR SAMPLE DISK!) (TAX EXEMPT PRICES LESS \$1 PER PACK)

3 1/2" "NO BRAND" DISKS!

1-9 PACKS 100+ PACKS 100+ PACKS
\$29 **\$28** **\$27.50**
(PER PACK) (PER PACK) (PER PACK)

(SEND \$5 FOR SAMPLE DISK!) (TAX EXEMPT PRICES LESS \$4 PER PACK)

**MICRODOT 5 1/4" DISKS!**

DESCRIPTION 1-9 BOXES 10+ BOXES
5 1/4" S/S D/D \$14.95 \$13.95
5 1/4" D/S D/D \$15.95 \$14.95

(SEND \$2 FOR SAMPLE DISK!)

**5 1/4" DISK STORAGE**

Efficient and practical. Protect your disks from being damaged or lost!

- 70 disk capacity
- Smoked plastic cover
- Lockable (2 keys supplied)
- Dividers/spacers

Cat. C16025 only \$14.95

**3 1/2" DISK STORAGE UNIT**

- Holds up to 40 x 3 1/2" diskettes.
- Lockable (2 keys supplied)
- High impact plastic lid and base

Cat. C16035 only \$14.95

**APPLE® COMPATIBLE SLIMLINE DISK DRIVE**

Compatible with Apple 2+

Cat. X19901 Normally \$225

SPECIAL \$179

APPLE® IIC COMPATIBLE DISK DRIVE

(including cable) only \$199

(*Apple is a registered trade mark.)

**RS232 FAST CABLER**

Makes RS232 interface configuring fast and simple. 3 slide switches enable line swapping functions, positive and negative voltages are displayed on 6 tricolour LED's.

SPECIFICATIONS:

Connector: DB25 plug on 100mm ribbon cable and DB25 socket on 100mm cable

Indicators: Tricolour LED's for pins

2(TD), 3(RD), 4(RTS), 5(CTS),

6(DSR), 20(DTR)

Switches: 3 Slide switches to swap leads

Power: Interface power.

Enclosure: Black, high impact plastic

Dimensions: 85 x 95 x 30mm

X15710 \$145

**RS232 BREAK OUT BOX**

A simple way of monitoring RS232 interface lead activity. Interface powered, pocket size for circuit testing, monitoring and patching.

10 signal port, 10 LED's and 2 splices. 24 switches enables you to break out circuits or reconfigure and patch any or all the 24 active positions.

SPECIFICATIONS:

Connectors: DB25 plug on 80mm ribbon cable and DB25 socket on 80mm cable

Indicators: Tricolour LED's for TD,

RD, RTS, CTS, DSR, DC, TC,

RC, DTR (Etc.).

Jumper Wires: 20 tinned end pieces.

Power: Interface power.

Enclosure: Black, high impact plastic

Dimensions: 85 x 95 x 30mm

X15700 \$94.95



CHRISTMAS PRODUCTS

listing of software in the Library. PC-SIG claims to be the world's largest distributor of User Supported Software with a library of around 1000 disks. A user makes a selection from the Directory which costs \$13 per disk, plus \$5 packing and freight per order. If the software is not to the user's liking there is no more money exchanged. If the software is to be used, a donation of between \$20 and \$150 to the author is encouraged.

Not only will there be something on Christmas morning, but each month an update to the Library will arrive in the mail. A Christmas gift that will last for twelve months and priced at \$28 plus \$5 packing and freight. It can be delivered specially wrapped and with a free card anywhere in Australia in the week before Christmas by Ansett. To join, send a Viatel message to Manaccomm (4900#), telephone, or fax, (02) 875 2810.



Tandy Products

Tandy Electronics
Phone: (02) 675 1222
Price: See below

There are lots of various computer peripherals that can be bought from any Tandy dealer that would make the ideal Chrissie present. One possible gift is a pair of joysticks. They have fast 360 degree movement and each has a single shot button. Ideal for the games buff! The joysticks cost \$34.95 (taxed) a pair. The CCR-81 is a computer cassette recorder for loading and saving programs and data on cassette tapes. It features a battery/recorder LED indicator as well as a cable. Operates on 240 volts AC or four C size batteries (not included). Priced at \$89.95 (taxed). Another gift idea from Tandy is a \$10 or \$25 Gift Voucher available from any Tandy dealer. Tandy also has a free 1988 catalog — though you'd better keep it hidden: it's full of great addons and ideas!



Heinemann Publications

William Heinemann
Phone: (03) 429 3622
Price: See below

Did you realise that computer sewing is the most exciting advance in stitching since the invention of the domestic sewing machine? Not many people do. Heinemann has released *The Complete Computer Sewing Book* and although it has nothing to do with computers as we know them it might be a good gift for the enthusiast who think they know everything about the technology! It is priced at \$29.95.

Seriously though, other titles such as *CMOS Circuits Manual*, which describes the basic principles and characteristics of these devices, may be more to your liking. If you have an Amstrad user friend, he or she may like the *CPP/M Plus Handbook*, an operator's and programmer's guide for the Amstrad CPC 128 and PCW8256; priced at \$35 and \$39.95 respectively.



World Expo 88

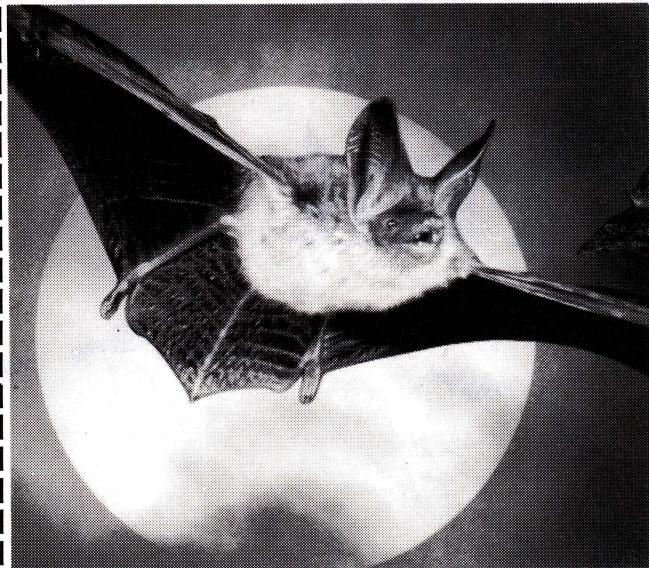
World Expo 88

What better present could there be than a trip to the World Expo '88 in Brisbane? You could combine a second honeymoon (or dirty long weekend!) with your partner's enthusiasm for technology. It will be something that you will never forget — and probably won't have the opportunity to see again.

An exhibition that should not be missed is the Technoplaza Japan — this enchanted computerised forest of animals is sure to delight all, and computer games players will be over the moon visiting the games room. There should be plenty of computer 'gadgets' to look at as well as play with. The theme of the whole Expo is Leisure in the Age of Technology so anything hi-tech goes! There will be touch sensitive screen displays with

Digital signal processing

Now your ideas can really take flight.



Current DSP solutions for sonar, radar, video, and telecommunications are great until you hit the limitations of the multiplier-accumulator bottleneck.

Just imagine what you could do with 32 complete 16 x 16 multipliers, each with 36 bit accumulation, and up to 10M sample/sec continuous data rate - all on a single CMOS chip which is cascadable virtually without limit.

The IMS A100 Cascadable Signal Processor is the first of a new generation of high performance DSP engines from INMOS. A single A100 has the processing power to handle the kind of real-time DSP systems you need, like 10M sample/sec 32 tap adaptive digital FIRs (Finite Impulse Response filters), & 10M/ sample /sec 32 stage continuous correlators. With two or more A100s, almost anything is possible, including any length FIR or correlator, sub-1ms Fourier Transforms, and higher data rates, all that power is controllable from any micro processor, executing any language, *and is extendable without glue logic*.

IBM XT/AT DSP development systems with up to 1280 Million operations per/sec capability, and 10 M/samples /second continuous Data throughput. Fully compatible with Transputer Family. Simulation software written in high level - Parallel Processing language "Occam 2". And it's available now.

THE TRANSPUTER

PARALLEL PROCESSING. UNPARALLELED POTENTIAL.



Bitten? For more information on the IMS A100 cascadable signal processor call Trevor Evans: [02] 325530 and let your ideas soar.

HAWK ELECTRONICS PTY. LTD.

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Sydney, NSW 2027.
Australia
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Small Foot Print



Big Kick!

How to keep your business on its toes!

The all new ACER PC-710 by Multitech takes up less space on your desk — but gives you better performance and more power than ever before!

It's fast!

Claimed to be the world's fastest 8088-based PC, the new 710 gives you keyboard selectable 4.77MHz or lightning fast 10MHz clock speeds. That's a time and money saver especially for those big jobs!

It's powerful!

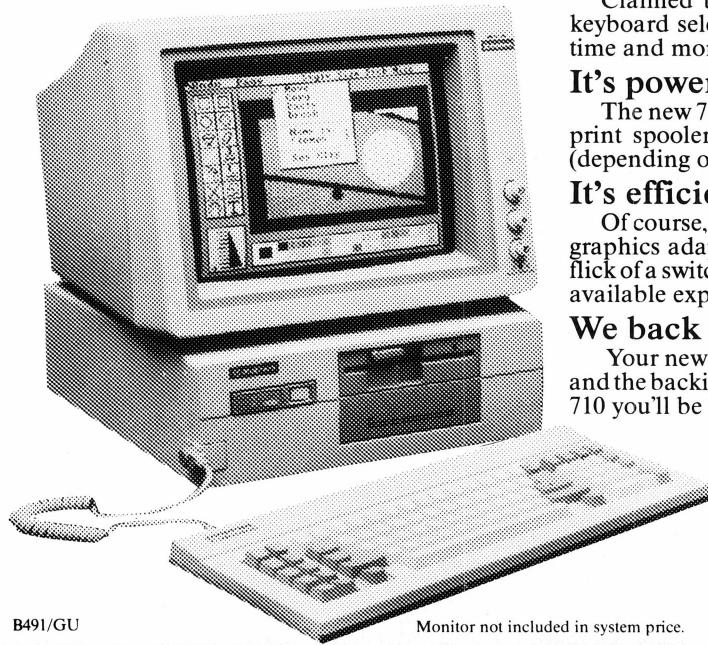
The new 710 has 640K on board RAM — plus 128K for use as a RAM disk or print spooler. With twin 360K floppy disk drives or 20Mb hard disk drive (depending on the model), it'll handle virtually any business task — easily!

It's efficient!

Of course, the 710 is IBM compatible, but it gives you much more! The 3-in-1 graphics adaptor lets you choose between mono or full colour monitor at the flick of a switch. With standard Serial and Parallel Ports and a minimum of three available expansion slots there's room to grow.

We back it up!

Your new PC-710 comes with 12 months warranty, MS.DOS (V3.2) software and the backing of our skilled Computer Support team. Once you've seen the PC-710 you'll be kicking yourself if you don't buy one!



B491/GU

Monitor not included in system price.

System 1

With 640K RAM, 3-in-1 graphics adaptors and twin 5½" floppy disk drives.
Cat X-8150

\$1595

System 2

With single 5½" floppy disk drive and 20Mb hard disk it's big business at a small price!
Cat X-8151

\$2695

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ELECTRONICS**
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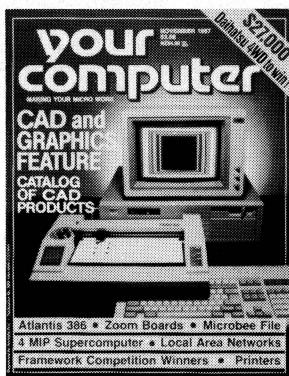
NSW • Gore Hill 439 5311 • North Ryde 88 3855 • York St 267 9111 • ACT • Canberra 80 4944 • VIC • Elizabeth St 670 9834 • QLD • Brisbane City 229 9377
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everything visitors want to know about the Expo.

Seasonal passes are available, but perhaps the best ticket to buy for Christmas would be the three day pass for \$47 an adult. Day tickets are available from February 1 and evening tickets from April 1. The three day passes are available from Australia Post Offices. For ticket information ring either (02) 266 4888 or (07) 840 0888. The toll free Credit Card hotline number (008) 023188. You can also write to World Expo Tickets, GPO Box 50, Brisbane 4001 Qld. Any enquiries on accommodation should be directed to the Queensland Tourism & Travel Corporation on (07) 833 5400. If you manage to lose your partner, kids or umbrella at the Expo — don't worry as technology is assisting Expo organisers. A system called Lostots features a colour screen equipped with automatic video camera, microphone and speaker is located in five places around the Expo. Parents will be able to communicate with and comfort the lost child from any of the sites. The Expo Finders computer system will also help you track down that lost umbrella!



Your Computer

Price: See below

There must be no greater present to give a computer enthusiast than a year's subscription to Your Computer — and no greater present to receive (and Jake would appreciate the thought, too)! Each month is filled with reviews, helpful hints, feature stories and regular columns. So stop that person from reading over your shoulder every month! The subscription rate in Australia is \$35.40, and for New Zealand \$A59.40. Just fill out the subscription card in this issue.

Under the Tree

Software



ACT!

Personal Computer Software

Phone: (02) 923 2899

Price: \$599 taxed

ACT! is a fully integrated system that organises and maintains records, files and prints reports and has a calculator, bulletin board, electronic reminder, library and an integrated word processor. It allows for fast, easy data entry and features Lotus 1-2-3 like menus, one-stroke hot key commands and editable pop-up windows. The history of each record is instantly updated. Any group of records can be located immediately, according to any specific criteria you choose.

Disk-N-Dex

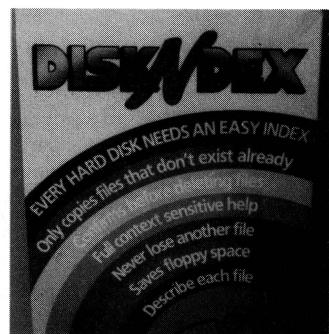
Software Source

Phone: (02) 389 6388

Price: \$249 taxed

This must be the ideal present for the disorganised person. If you (or the person you are thinking of) have a hard disk chock-a-block with data, or dozens of floppies that just don't specify what is on them, then Disk-N-Dex is sure to solve the problem. Disk-N-Dex produces an index on your hard disk of every file you have got. Wildcard searches enable you to find that file you've been looking for and then take a quick look at it.

Files may be given full 80 character descriptions for later searching; descriptions may be changed or added at a later stage. They can also be tagged for copying or erasure. When files are to be backed up, the archive facility means that only files changed or added to are copied. Files can be accessed normally



from archival disks. The user is always prompted before erasure of a final copy of a given file. Special versions of the DOS copy, rename and erase functions make sure that Disk-N-Dex's database is continually updated.

Mail-Voice

Progeni

Phone: (02) 419 6300

Price: From \$77,000

If you are a busy executive, or you want a gift for a busy executive, then Mail-Voice may be just

BACKUP ESSENTIAL DATA DUPLICATOR

Back up your copy-protected disks with **ESSENTIAL Data Duplicator 4 PLUS** ■

EDD 4 PLUS is new technology, not just 'another' copy program. The **EDD 4**

PLUS program uses a specially designed hardware card which works with your disk drives to back up disks by accurately copying the bits of data from each track. Don't be fooled... no other copy-program/system for Apples can do this! ■ In addition to backing up disks, **EDD 4**

PLUS includes several useful utilities such as examining disk drives, certifying disks, displaying drive speed rpm's, plus more!

■ **EDD 4 PLUS** runs on Apple II, II Plus (including most compatibles), and IIe, and is priced at \$190.00 (duodisk/ unidisk 5.25 owners must add \$32.00 for a special cable adapter). ■ A standard

EDD 4 version which doesn't include any hardware is available, and can be used on Apple IIc and III (using emulations mode) and is priced at \$125.00.

- Bankcard and Master card accepted by phone.
- Add \$3.00 to all orders for postage and handling.

All orders must be prepaid.

UTILICO SOFTWARE

83 HALL ST., BONDI BEACH,
NSW 2026 PHONE (02) 30 2105

WARNING: EDD is sold
for making technical
copies only

the thing.

Mail-Voice is a software product that uses a synthesized human voice to read messages over the telephone. It is an electronic mail system that is capable of relaying text to any workstation and voice to any telephone from a mainframe database. Mail Voice was developed

by Applied Data Research of New Jersey, USA, a company which specialises in software systems for the IBM and IBM compatible and IBM compatible mainframe environment. The Australian software licence for Mail-Voice is \$77,000 for VSE, \$92,000 for VC/CMS and \$96,500 for MVS environments.

The Sharp QA-25 Computer Projection Panel consists of a 640 x 200 pixel flat bed, super twisted, high contrast liquid crystal display. It plugs into an RGB port to provide a high resolution real time display of data on the monitor of a PC, even in normal room light. The Sharp QA-25 utilizes a standard overhead projector to obtain an enlarged image. It is portable, weighing only 2.7 kilograms and does not require software or add-on boards, as well as being compatible with virtually all software applications. It can be used to display either the operators input or data stored on floppy disk. The unit incorporates a small fan.



New Machines

ADE-60

ADE Computers
Phone: (03) 543 2677
Price: \$475 untaxed

The ADE-60 monitor is fully compatible with the IBM Colour Graphics Adaptor. It has a resolution of 640 x 240 and a 0.39 mm dot pitch. Front panel controls include the 3 in 1 switch which allows operation in amber, green or full colour modes. Other front panel controls include on/off brightness and contrast. The ADE-60 comes standard with an anti-glare screen. Tilt and swivel actions are optional extras.



Build It Yourself
Dick Smith Electronics
Phone: (02) 888 3200

Price: Not supplied

This would be a great present for the person who likes building electronic gadgets. DSE has released a build it yourself computer kit for an AT compatible machine.

It can be built with a number of configurations, including one or two floppy drives, one or more hard disk drives, up to 1024 kilobytes of memory, a graphics card (MGA, CGA or EGA) and either a standard or expanded keyboard. According to DSE, the computer can be built even by those with little electronics or computer knowledge. All electronics assembly work is premade and all printed circuit boards are fully built and tested. Preassembled wiring looms are supplied and no soldering is involved. Fun on a rainy day!

**Sharp QA-25
Projection Panel**
Business World
Phone: (03) 561 7222
Price: Not supplied



T1200

Toshiba
Phone: (02) 887 3322
Price: \$5916 taxed

A nice portable computer would be quite handy to have, wouldn't it? You could take it on the bus in the morning, or out on the sundeck on the weekends! Toshiba has released the battery powered T1200 portable PC. The T1200 is equipped with a 20 megabyte hard disk, a 720 kilobyte 3½ inch disk drive and one Mbyte of RAM. It comes with a NiCad battery pack and a three pack external battery recharger. The T1200 is 310 mm wide by 67 mm high by 300 mm deep. There is an 80C86 microprocessor with clock speeds of 9.54 and 4.77 MHz.

It features an 80 by 25 line CGA compatible, high contrast supertwist liquid crystal display with 640 x 200 pixel resolution. The keyboard has 82

keys including a special function key for complete IBM compatibility, an integrated numeric keypad and eight dedicated cursor control keys. An optional 17 key external numeric and cursor control keypad is also available.

Peripherals



Desktop 1280

Sourceware
Phone: (02) 411 5711
Price: \$7800 taxed

Desktop 1280 is a high-performance, intelligent monochrome

graphics controller for the IBM environment; it provides high resolution monochrome graphics display for desktop publishing applications. When combined with a high-performance 19 inch monochrome monitor and DTP packages such as Ventura Publisher, the Desktop 1280 will allow two A4 pages to be displayed side by side in good clarity.

It also supports the IBM Colour Graphics Adaptor standard, simulating colours with textures

and screen fill. Users can run most software without having to swap monitors. A 1280 x 960 pixel screen provides an exact 4:3 aspect ratio in landscape orientation for multiple page editing. A high speed Intel 82786 coprocessor quickly offloads graphic primitive execution, bit block transfer, raster operations and text handling from the PC. The Desktop 1280 supports the MS-DOS versions of Ventura Publisher, Pagemaker and Auto-Cad.



Apple Personal Modem ▲

Apple Computers
Phone: (02) 888 5888
Price: \$595 taxed

Apple has released an asynchronous datamodem for application with the complete range of Apple II and Macintosh PCs. An intelligent, direct connect product, the Apple Personal Modem replaces the Apple Modem 1200. It supports CCITT V21 (300 bits per

second in both directions), CCITT V23 (1200/75 videotex) and Bell 103 standards. An external unit designed to stack with a standard 3½ inch Apple disk drive, the modem has a full range of automatic functions including auto dial, auto ranging, auto answer and auto disconnect. The modem was engineered in Australia by Netcomm.

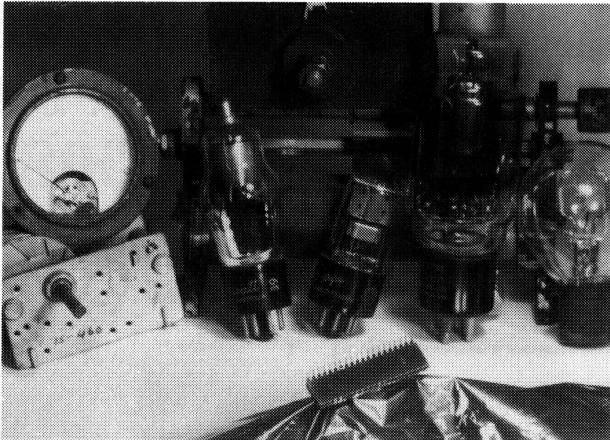
Baby AT Motherboard

Electronic Solutions
Phone: (02) 427 4422
Price: \$995 taxed

This would be an ideal present for the person who wants more performance from their computer, but cannot afford to upgrade their machine. Electronic Solutions has released a Baby AT motherboard. Using surface mount technology, full expansion capabilities (including 8 ex-

pansion slots) are available in half the space of the normal AT motherboard. Mounting holes enable the board to be dropped straight into your existing PC/XT. It offers an 80286-8 processor running at 10 MHz and switchable to 6 MHz, a 7 channel DMA for disk and special I/O, on board battery backup configuration and a real time clock. The motherboard includes 640 kilobytes of RAM.

At last, the ordinary microprocessor can take its rightful place in history.



It had to happen—the conventional microprocessor has had its day. Regulated to the ranks of yesterday's devices by the new transputer family from INMOS. It's history in the making.

The IMS T414 transputer is a fast, easy-to-use VLSI component, integrating a 32-bit processor, four intertransputer communication links, 2K bytes Static RAM, 32-bit memory interface and DRAM controller. All on a single CMOS chip offering execution rates up to 10 MIPS.

While transputers excel in single-processor systems, their real power can be unleashed by connecting any number of transputers together via the high-speed serial links. Multi-transputer systems can deliver the performance you need today, and can be easily expanded in the future as your processing requirements increase.

And there's more. Programming multiprocessor systems has never been easier. The Transputer Development System (TDS) supports C, Fortran, Pascal and OCCAM, providing a complete software development environment, and is available for a number of popular hosts. Software developed on the TDS can be executed on one or more transputers, enabling cost - performance tradeoffs to be made.

INMOS transputers are available now and have already found their way into companies who are evaluating, prototyping and manufacturing transputer based systems. Applications include supercomputers, DSP, graphics, robotics, AI, distributed control systems, PC's, engineering workstations and many others.

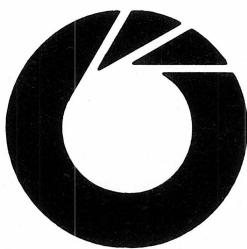
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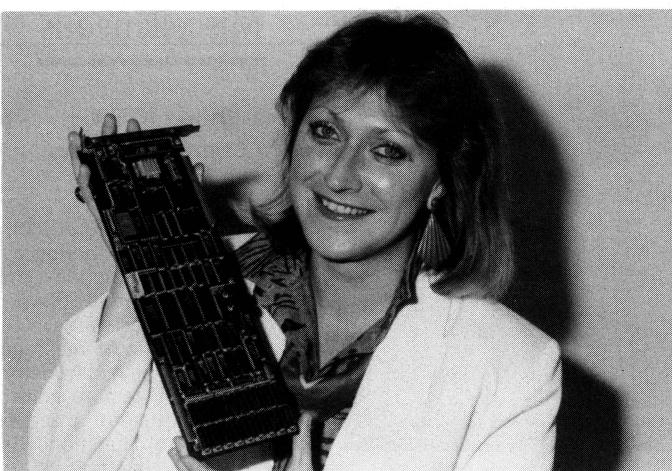


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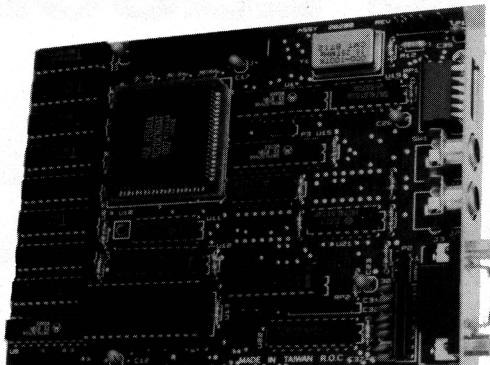
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Price: \$2400 taxed

Ever sit in front of your computer and almost go to sleep waiting for it to complete a task because it is so slow? Why not treat it to a pick-me-up in the form of an accelerator board such as the Hyperformance. Hypertec claims that the Hyperformance board can boost the speed of a standard PC by up to 10000 per cent.

The Hyperformance board effectively replaces the 8088 pro-

cessor of the host computer with its own 80286 running at either 12.5 MHz or 16 MHz. A megabyte of 16-bit RAM on the Hyperformance ensures speed is unrestricted by the slow, byte-wide memory of the standard PC. All existing memory is instantly available for RAM disks, spooling or expanded memory. It also has an automatic slow down feature which detects whether slow peripheral or speed sensitive applications (such as communications) are struggling at fast speeds and adjusts its speed to accommodate the device or software.



PEGA Card

Electronic Solutions

Phone: (02) 27 4422

Price: \$495 taxed

Electronic Solutions has released the PEGA Card, an EGA compatible video card. It provides complete compatibility with software written for all other video cards, including Colour Graphics, Hercules Graphics and Plantronics ColourPlus modes. External switches mean that the

PEGA card can be configured from outside the system.

An easy to use utility has been supplied with the card which allows users to switch between modes. Flicker free scrolling is performed in all modes. There are 256 kilobytes of RAM installed. The card is fully compatible with monochrome, RGB and enhanced RGB monitors. It can be configured to work in a twin monitor arrangement, in conjunction with another video card.



Touch Window

Edsoft

Phone: (03) 878 4899

Price: \$364.80 (Apple IIe/IIc only)

Touch Window is a touch screen system that was developed for people who need to use a computer, but do not have time to learn complex computer commands. It is simply mounted to

the front of the monitor and the Master Touch software is installed. The user just touches the screen and Touch Window activates the command. Removed from the monitor, it can also become a graphics tablet for graphics, drawing and designing. Touch Window fits most monitors, colour or monochrome, from 10 to 15 inches.

FREE IBM SOFTWARE

Demented Tim Hartnell is offering you a virtual library of IBM software, all in exchange for six itty-bitty 37¢ stamps!!!!!!

Here's what you get in your free software library: PC-WRITE (acclaimed word processor); arcade games P-BERT, PANGO and SPACE INVADERS; a RAMdisk; machine code OTHELLO; PIANO (with 'record' and 'playback' of your own tunes); a number of great utilities including BANNER (to print big advertising signs); COVER (to print a directory-cover for each of your disks); BIORHYTHMS; CALENDAR; PRINTCHAR (to design characters for your FX-80 or compatible printer); plus CONVERT, DSKDRV and SQUEEZE. Finally, this crammed collection ends up with PC-DISK which gives you incredible power when manipulating the contents of your disks!

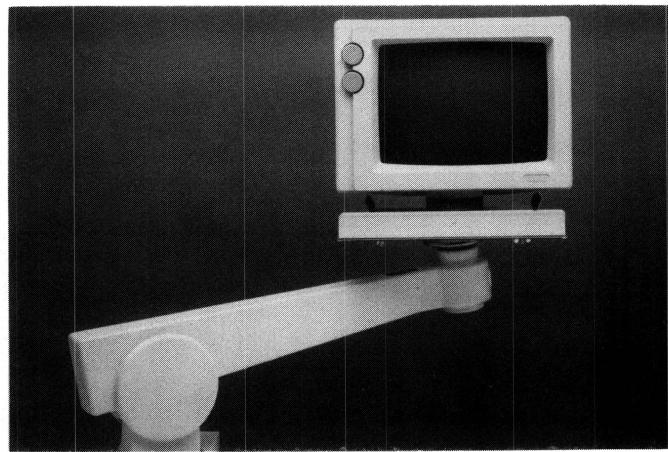
Just send us your six 37¢ stamps, plus your name and address, and ask for 'FREE HARTNELL SOFTWARE LIBRARY' and we'll get it to you el pronto. We'll also include our latest catalogue of IBM PC and Apple II software. Send today to: Tim Hartnell, Interface Publications (Aust.) Pty. Ltd., Chelsea House, 34 Camp St., Chelsea, Vic., 3196.

Voice Record/Play Card

Tiger Electronics
Phone: (02) 308 261
Price: \$195 untaxed

Make your computer come to life with the Voice Record and Replay Card. It consists of a half slot card for the IBM PC, XT, AT or compatible, software, documentation, microphone and speaker. The applications for the Voice Card are numerous. The visually impaired or disabled people could use it to enhance their use of computers. It could also be used for demonstrations using spoken prompts. Languages other than English can be also be supported and music can also be recorded and played.

Installation is simple: the card is placed in the computer and the speaker is plugged in. Once installed, you have the option of recording messages, storing them on either floppy or hard disks, retrieving or replaying them. Versions are available in Basic, C and Pascal. The price includes the board, software, microphone and speaker.



Furniture

VMS-003

Sylex
Phone: (02) 647 2888
Price: \$287 taxed

Sylex has released the latest product in its range of monitor arms, the VMA-003. It features

fingertip height adjustment, 360 degrees rotation of the arm and platform, and effective cable management ducted through the arm. The VMS-003 has a 20 degrees tilt adjustment at the head, with automatic fixing to avoid glare of overhead lights and windows. The monitor 'floats' freely above your work area for comfortable and efficient location of your VDU.

Miscellaneous

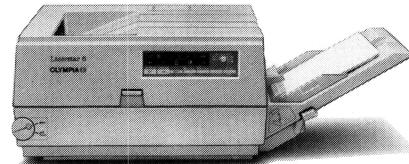
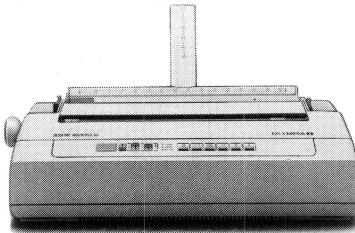
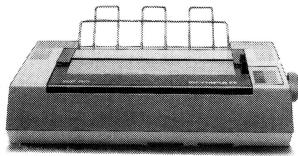
Voca-Phone RT300

Voca Communications
Phone: (03) 697 7000
Price: See below

The Voca-Phone RT300 or RT500 auto paging, auto answering systems are probably the ideal present for the small business person. The voice activated Voca Phone RT300 allows messages left by callers to be replayed from any location by remote control — without the use of a beeper. Remote control functions include playback, fast forward, rewind, erase announcement change and paging on/off. A 3 digit, programmable security code prevents unauthorised retrieval of messages.

The Voca-Phone AT500 offers the convenience of an answering system with the same advanced features, for use with existing telephones. Both come complete with microcassette tapes, telephone connection cords and

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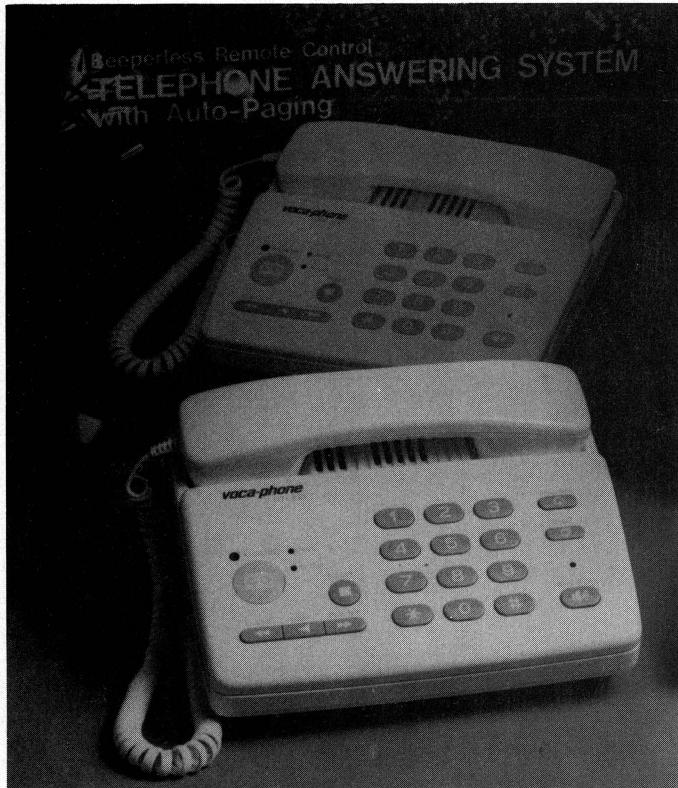
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owner's instruction manual. The Voca-Phone RT300, in either grey, white or light green, has a recommended retail price of \$345.

\$395. The Voca-Phone AT500, available only in beige, has a recommended retail price of \$345.



Family Pack

Tandy Electronics
Phone: (02) 675 1222
Price: See below

The kids are using *your* computer to play games with *again!* And they haven't completed their homework. Why not get them off your computer with the Family Pack for Home/Education use. It

▲ features a computer cassette recorder, a set of joysticks, marker pen, two education and two games programs. The DMP106 printer, cable and Scripsit 2 sell for \$899.95 taxed.

Tandy also has the Color Computer 3, a 128 kilobyte system. It can be used with either a TV or monitor (purchase is extra). The CoCo 3 is \$369 taxed.

Events

The EDP Auditors Association will be holding an international conference at Jupiters Hotel on April 27 to 29. Contact Lex Page or Tony Muston on (02) 250 0500.

Information Online '88 the third Australian online information conference and exhibition is to be held at the Sydney Hilton Hotel from January 19 to 21. Phone Andrew Mackenzie on (02) 235 8273.

The Australian Urban and Regional Information Systems Association will hold its 15th Annual Conference — UPRIS 15 — in Hobart from December 2 to 4. For full details contact the conference secretariat (002) 34 1424.

The Fourth National Space Engineering Symposium will be held in Adelaide July 12 to 14. Papers dealing with any space engineering are invited.

Contact (062) 73 3633.

Ausgraph '88 organisers are calling for previously unpublished papers dealing with Cad/cam animation, scene simulation and image processing. The show will be held in Melbourne from July 4 to 8 at the Hyatt on Collins. Details (03) 387 9955.

The Open Access User Group meets on the second Tuesday of each month at 6 pm at the Fujitsu Training Centre in North Sydney. Phone Judy Jeffrey on (02) 439 5982.

The Standards Association of Australia is calling for comments on a proposed new standard which specifies requirements for a software quality management system. Phone (02) 963 4111, for details.

The Joint International Symposium on Information Systems is calling for papers for its meeting to be held in Sydney from February 29 to March 2 next year. Details on (02) 697 4413.

Papers are being called for Forum '88, the Honeywell Bull User's Association. It will be held at the Sydney Hilton Hotel from July 21 to 23. Contact (02) 218 9578.

The Fourth Mathematics in Industry Study Group will be held at the University of NSW of February 1 to 8. Contact Dr Barton on (02) 467 6702.

The Australasian User's Group meets on the first Tuesday of each month at the Park Royal in St Kilda Road, Melbourne, at 5.45 pm. Phone Barry Roberts (03) 267 4844.

Special Interest Groups of PC Users are: CONSIC meets on the first Wednesday of each month in Sydney, contact (02) 290 2655. The DTP Graphics SIG meets on the first Tuesday of the month in Sydney, contact Mark Richards (02) 929 5855. PCWEST meets on the first Monday of the month in Sydney, phone Bill McEwen (02) 627 2488.

Overseas Exhibitions

The Pacific Telecommunications Council will hold its annual conference from February 15 to 18 at the Sheraton Waikiki Hotel, Honolulu, Hawaii, with the theme, Telecommunications and Pacific Development: Alternatives for the Next Decade. Electrex, a UK electrical and electronics exhibition, will be held in Birmingham from February 29 to March 4 next year. Contact Keith Prowse (Australia) on (02) 953 8888.

The EDP Auditors Foundation Conference: The 18th Conference is to be held in Atlanta, Georgia, US on April 10 to 15, 1988. Write to The Program Chairman, The EDP Auditors Foundation, Box 88180, Carol Stream, IL 60188-0180 or telephone 312/653-0950. □

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Simple Screen Menuing. Drafix 3-D Modeler features a straightforward on-screen menuing system and "helps prompts" so you'll be creating dimensionally accurate 3-D drawings soon after installing the program.

Automatic Hidden Line Removal. Drafix 3-D Modeler actually removes obstructed lines from the view, not just masking them with solid fill. This allows you to generate clear, accurate perspective plots or prints from the model.

Fully Drafix Compatible. Drafix 3-D Modeler was specially designed to work smoothly and efficiently with the Drafix 2-D programs. It is compatible with all Drafix 1 and Drafix 1 Plus-supported hardware configurations. Any view of your 3-D model can be easily transferred to Drafix 1 or Drafix 1 Plus for further drafting enhancement. Once the drawing is complete it can be printed or plotted through Drafix 1 or Drafix 1 Plus. DRAFIX 3-D MODELER HAS THE SAME FEATURES FOUND IN THE PRODUCT RATES AS THE #1 3-D CADD IN THE JANUARY 1986 AIA CADD REVIEW.

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SPECIAL NOTE: Drafix 3-D Modeler must be used with Drafix 1 or Drafix 1 Plus for plotter or printer output. A Math Coprocessor, which can increase product speed by up to 6 times, is highly recommended but not required. Supports all Drafix 1 & 1 Plus supported hardware.



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Why Your Hard Disk May Be Only Seconds Away From Total Failure!

WELCOME TO THE INNER WORLD OF HARD DISKS: WHERE MICROSCOPIC PROBLEMS CAUSE MAJOR CATASTROPHIES.

A typical 20-megabyte hard disk contains over 200,000,000 bits. If only one bit changes or fails, you can lose everything on your disk. Hard disks are subject to so many inherent, uncontrollable conditions that random failures occur with alarming frequency. You already may have been tortured by one of these hard disk error messages: DATA ERROR, GENERAL FAILURE, ERROR READING, WRITE FAULT, BAD SECTOR, SECTOR NOT FOUND, FILE ALLOCATION TABLE BAD, DISK ERROR READING FAT, DISK NOT READY, INVALID DRIVE SPECIFICATION, NON-SYSTEM DISK OR DISK ERROR, READ FAULT, BAD DATA, ABORT-RETRY-IGNORE — plus hundreds more that we simply don't have space to mention. Here is why:

PROBLEM ONE: OUT OF ALIGNMENT. There are hundreds of circular tracks packed into every inch of your hard disk's magnetic recording media. They are extremely thin, about as thick as a single strand of hair. Perfectly aligned tracks on a new, out-of-the-carton hard disk look like those in figure 1. Your programs read, but never write, to any of the special Track and Sector ID areas shown in black.

When your system has been off and is cold — in the morning, for instance — head positioning mechanics shrink, causing heads to read and write towards the inside. As the unit warms they expand and tend to read and write towards the outside. Add friction, wear-and-tear, play, torquing, repeatability, vibration, irregular platter and surface expansion, etc. — and within a very short time your data, program and system sectors can go out of alignment like those shown in figure 2. This is a continual, serious problem: valuable data may be written so far off current head tracking that it is no longer readable, resulting in devastating errors and lost data.

Disk Technician™ Automatic AI Software System's early warning detection must be used daily to keep data, program and system sectors in perfect alignment. When even the slightest change is detected, Disk Technician safely removes any data and stores it in your computer's RAM, then restores perfect alignment by rewriting the entire track, including the "read only" Track and Sector ID areas, using Disk Technician's own factory low-level, Real format. This new track is then thoroughly retested, and only if has been perfectly repaired, will Disk Technician allow your valuable programs and data to use it again. If retesting reveals that any bit is not perfect, data is relocated to a good area and the bad area is safely blocked from future DOS use. When Disk Technician repairs an area, it specially monitors that spot on all subsequent tests to make certain it stays repaired. This is a totally automatic, unattended process.

PROBLEM TWO: MEDIA AND DISTANCE. The typical distance between the head and the media is about 25 millionths of an inch. By comparison, a smoke particle is about 10 times greater and a human hair is over 100 times greater! Expansion and contraction caused by normal heating and cooling, wear-and-tear, media degradation, vibration, humidity, platter wobble and aging all cause this distance to vary (see figure 3). Read and write quality varies directly with these distance changes.

No matter how carefully the hard disk media was manufactured, there still will be variations in coating thickness, smoothness and magnetic density (see figure 3). Add aging and magnetic retentivity changes, and some spots may change from "good" to "unreliable" overnight. Magnetic hard disks act just like old photos: they fade away — along with your data! Disk Technician is the only total solution to these problems.

Disk Technician reads, writes and tests every single bit on the hard disk, occupied or not, using special proprietary testing and repair algorithms to check for soft error rate, magnetic retentivity, and the ability to read and write perfectly. If even the smallest marginality or error is found, Disk Technician will automatically proceed with its complete repair and restoration process. DOS and other programs can only tell you after 10 to 30 errors have been made. Our testing reveals that once a spot makes more than 3 to 5 soft errors, total failure is imminent. Disk Technician's daily preventive testing, repair and recovery is the only real cure.

PROBLEM THREE: POWER. Static electricity, turning power on-and-off, brownouts, surges, spikes and static electricity all can cause the heads to write meaningless "garbage" into whatever tracks they happen to be located over. Although hard disks and computers are designed to minimize accidental head writes, they still occur and cause devastating damage — often wiping out an entire disk. Disk Technician takes a new approach to cure these problems.

When Disk Technician is run, it automatically installs SafePark™ memory resident software program and creates a "safe zone" on your hard disk, safely relocating any data in this area. Then, whenever you boot from your hard disk, SafePark becomes memory resident and operates with all of your programs all of the time. When there is no disk activity for approximately 7 seconds (user adjustable), SafePark automatically moves the heads to the safe zone. Once the heads have been moved — which will almost always be the case — and there is static electricity or a power glitch, any damage will be confined to the safe zone: protecting your valuable data and programs.

WHY SUFFER AND TORTURE YOURSELF WITH HARD DISK GRIEF? Disk Technician virtually eliminates all your problems! It is so easy to use — absolutely no technical skill is needed — and takes less than 60 seconds of operator time daily. **BUY NOW! HEAD-OFF HARD DISK DISASTERS BEFORE THEY COST YOU TIME AND MONEY!**

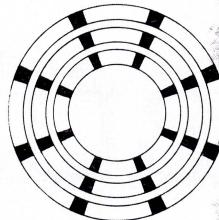


Figure 1* Perfectly aligned tracks. The black areas are "read only." These store critical track and sector ID information. The white areas are data sectors and store your system, programs and data.

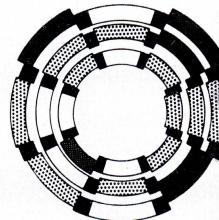


Figure 2* Sectors out of alignment with the track. The most frequent cause of lost or unreadable data. See Problem One.

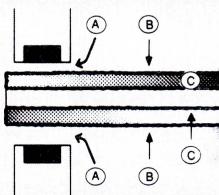


Figure 3* Heads, media and platter. A: The distance from the heads to the media continually changes. B: The magnetic coating varies in thickness and smoothness. C: Magnetic retentivity varies and decays. See Problem Two.

*Magnified and simplified for clarity.



TECHNICAL SPECIFICATIONS

- Works on a single system of any IBM PC, XT, AT, derivative, COMPAQ or true IBM clone.
- Works on both physical C and D hard disk drives up to 32 megabytes and A and B floppy drives that conform to the IBM standard. On drives larger than 32 megabytes, it will work on the first DOS partition only. Disk Technician 2.0 will work on drives greater than 32 megabytes or on multiple DOS partitions provided the drive is partitioned using the IBM-DOS 3.3 standard.
- Can selectively test and repair any and all cylinders, heads and sectors in the DOS partition.
- Requires PC or MD-DOS version 2.1 to 3.3 with 256K of RAM.
- Requires a single 5 1/4" floppy drive.

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YOUR COMPUTER'S BULLETIN BOARD

Random thoughts on Opus...

Computer-Based Conversation System

THE YOUR COMPUTER Bulletin Board is part of the Fidonet network which links together boards in Australia, North America, Europe and Southeast Asia. Bill Bolton's Fidonet article in our October issue explained in some detail how the network is organised and how the mail system works. In that same article he briefly touched on Opus, which is the most popular software used on Fidonet boards — and it happens to be the software we use. (Incidentally: the YC Board runs on a President AT with 60 Megabytes of hard drive, a half-height floppy and a half-height, 40 Mbyte Alloy tape back up system.)

The technical side of Opus is fairly straightforward — massive, complex and well-integrated (just how 'well' and how 'integrated' you can judge for yourself as

you use the board and take advantage of the conferences and mail facilities), but straightforward.

The reason there is an Opus is that a bunch of Dallas, Texas, sysops who get together for beer and pizza, wanted to do it. And they did it, it seems, without a lot of philosophical brooding over what they were trying to accomplish.

But what they're accomplishing, the technical hurdles aside, is an independent network of computer users all over the world able to freely exchange information (at minimum cost) and be part of a growing fraternity.

Make no mistake — Opus is a Sysop's system; it was written of, by, and for them. As a result, the software is extremely flexible and, more important to users, almost totally transparent. Opus boards are prob-

ably the ‘smoothest’ to find your way around and amongst the easiest to use for file transfers.

I mentioned above there had been no 'philosophical brooding' by the developers, but that doesn't mean there's not a philosophy behind Opus. You'll see what I mean if you read the following random selections taken from the Sysop's 'official' Opus docs (that's 'documentation' to us Normal users). Some of it's good background information, all of it's good reading if you want to know more.

Messages

Messages can be of three basic types, or scopes: Local, Matrix and Broadcast. A message's scope determines its behavior on an Opus-based system.

Local Messages — Local messages are the simplest form available, common to almost all BBS systems. Local messages are available to a predefined group of users on a single BBS — the one where they were entered.

Matrix Messages — Matrix is the Opus word for network. This was chosen because of the ambiguity associated with the word 'network'. The Matrix is defined as a group of bulletin boards which can exchange information via the telephone network.

Opus 1.0 can place outgoing Matrix calls, and receive incoming mail from other Opera, or other systems running either the FidoNet<tm> or WaZOO matrix protocols.

Broadcast Messages — Broadcast mes-

BULLETIN BOARD

sages are fully compatible with EchoMail, which is covered in more detail later in this manual. EchoMail, by Jeff Rush, provides a means of maintaining the same message base on multiple bulletin boards. This allows conferencing — even internationally — if you choose to do so.

Remember, phone calls placed for mail transfers cost the same as regular calls. Be aware that Matrix transactions can involve long distance phone charges.

File Transfers

OPUS supports three different types of file transfers: uploads, downloads and Matrix. These enable sharing of public domain or 'shareware' software among users and other bulletin board systems.

Uploads — Uploading is defined as a user sending a file *to* a BBS. This lets users share programs they have written or collected.

Downloads — Downloading is defined as a user receiving a file *from* a bulletin board system. This allows a single point to serve as a 'holding tank' for software that can be freely shared among users.

Matrix — Matrix transfers are uploads or downloads between two Matrix systems. You can direct Opus to send a file to any other system in the Matrix. Opus will accept incoming Matrix files any time it is not busy.

Operating Philosophy

THE operational philosophy of Opus can be summed up in a very brief statement —

—=[KEEP IT SIMPLE!]=—

Notices and Such

The Opus Computer-Based Conversation System and all supporting materials are copyrighted by Wynn Wagner III. All rights are reserved.

Using Opus

Lawful and Friendly are the important words. The author of this system takes the license quite seriously, and if you use Opus you have to do so in a lawful and friendly manner.

Non-governmental: You are given a limited license to use Opus-CBCS as long as you do so in a lawful and friendly manner. This includes commercial installations. There is no money involved in running an Opus system.

Governmental: Groups controlled or supervised by any government must contact OPUSInfo Here before putting an Opus

sysop on-line. There is a license fee for governmental use.

Sysops are given permission to distribute Opus-CBCS and its support files for non-governmental use as long as there is no money charged. Nobody is ever to make money from the distribution of Opus software.

If your system is a bulletin board, you may not keep Opus on line for download if you charge money to your callers. Opus 0.00 said nobody was to make money from 'suggesting its use'. That was for consultants. That wording has been dropped because it was confusing. There is no longer any payment required for consultants or for those who suggest Opus to employers or clients — as long as there is no charge for the software itself.

Credit and Gratitude

Nobody who worked around the Opus 1.00 crew would dispute that the following folks have gone out of their way to help the project. We'll call this *Opus: Sine Qua Non* (the list of folks, without whom there would be no Opus)

David Finster — The original alpha tester, and the sysop of OPUSInfo Here. If there's something that a hacker is unable to do on [the] board, it is probably because David's sneaky mind thought of it first and showed me how to break the system.

Bob Hartman — In addition to tweaking my Sealink file transfer routine until it had a reasonable disposition, Bob adopted my source to the oMM program. He chipped in to help code when he saw the need. He is also the author of Opus!Comm (the first-ever FOSSIL program) and a series of echomail utilities.

Rick Huebner — He sent code! Here are some of the modules that Rick wrote: OOMP (the internal scanner), ZModem and dialing scripts. Rick would make the mistake of telling me something like 'I'm going to get bored this weekend. Got anything that needs to be written?' Not being the type to pass up many of those kinds of offers, I'd have a design doc headed his way in short order!

Rick really does nice work... although it's chock full of tacky squiggles. In fact, I would swear Rick is guilty of gratuitous squiggle.

Mike Kelleher — Mike is currently taking a sabbatical from his work as the sysop of OPUSInfo There. We'll call him OPUSInfo Emeritus. Over the past several months, he's helped hundreds of sysops while maintaining a strong sense of The Hobbyist Spirit.

John Miller — Documentation editor. I'm

thanking John before I've even read the documentation. He's pulling the docs together as I'm writing this. So... what I'll thank him for now is this: the chutzpah to jump in with both feet at the 11th hour. Vince Perrielo — The other alpha tester. Vince is also one of the prime instigators (read 'nag') of the FOSSIL standard.

The Opus beta-test team included: Rob Elliott, Chuck Lawson, Mike Kelleher, Harry Neghila, Jon Sabol, Butch Walker and Henk Wevers.

In addition to the active participants, the following should be mentioned for doing things without which we would have no Opus —

Ward Christiansen — thought up both XModem and bulletin boards.

Tom Jennings — originated the e-mail network now known as FidoNet<tm>.

Chuck Forsberg — designed ZModem, the fastest and most reliable file transfer protocol available.

Miscellaneous

FIDO and FidoNet are trademarks of Tom Jennings. The Sealink file transfer method is copyrighted by System Enhancements Associates. They have released the protocol for general use in return for this notice.

The word 'opus' is Latin for 'project'. Although several Opus system operators have adopted a certain penguin as a mascot, you should know that this is not official. Opus-CBCS software has nothing to do with the comic strip Bloom County that has a character named Opus. Any matters involving copyrights and/or trademarks on the penguin are between you and The Washington Post Co. (Bloom County did win a Pulitzer this year... maybe we should... naw....)

What It Is . . .

OPUS is an evolving computer-based conversation system that combines simplicity with configurability. Simplicity, in that a novice can have a rather nice bulletin board up and running very quickly. Configurability, in that an advanced sysop can turn the customization of his or her board into an art form. It's entirely up to them!

Therein lies Opus's charm: it has all the power an advanced sysop demands, while still being easy for both the user and the system operator.

Opus provides a feature-rich electronic messaging system, wide choice of file upload and download protocols, plus access to the world's premier amateur e-mail network. Clearly, it would be a bargain at twice the price! □

Software On The Cheap

New Releases

November 1987

At Software On The Cheap, we aim to bring you the latest public domain and user supported software from around the world. We have agents in the USA, Great Britain, and Asia scouring for the best programs available. Below we list only some of our new releases. Many of the programs on these disks are exclusive to us at Software On The Cheap. We point this out because in the past others have taken our compilations and resold them under their own name.

• MS-DOS

MS-DOS software is designed for IBM and close compatible computers. It is available in both 5.25 inch and 3.50 inch formats. We can also provide most MS-DOS software for the IBM JX.

• BUSINESS

MS2020 dBase COMPATIBLE DATABASE: Excellent NEW easy to use, menu driven, dBase III compatible database. Allows you to create and use dBase III data files, as well as various field types, mail merge facilities, and MUCH MORE! **Two Disk Set** Requires 512K.

MS2060 FASTBUCKS HOME ACCOUNTING PACKAGE: User Friendly Home finance package. Designed for the non accountant to manage his home finances. Supports upto 25 checking, savings, and charge accounts. Very fast due to its own file compression techniques. Includes recursive budget model that allows you to create a family budget painlessly. Also has financial calculation section, and complete loan amortisation generator.

MS2070 SALES PROCESSER: Excellent new program for keeping control of your sales. Allows for invoicing, statement production, and inventory control easily and effectively. Great for anyone in retail or wholesale industries. **Two Disk Set.**

MS2150 FANTASTIC: Great printing program, uses dot graphics on Epson and compatible printers to print text in numerous fonts and print sizes. Includes Roman, Helvetica, Caligraph, Script, Rotated, and others in sizes from 8 point to 24 point. Use it as your own miniature Desk Top Publisher. **Two Disk Set**

MS2151 SIGNSMIF: Sign printing utility to allow you to produce impressive signs, transparencies, etc using upto four fonts and dot graphics on Epson or compatible printer.

Prices

IBM 5.25 In...\$10 Disk

IBM 3.50 In...\$15 Disk

Amiga & Atari.\$15 Disk

Macintosh.....\$15 Disk

Commodore ..\$8 Disk

Apple II....\$8 Disk

Prices include sales tax

Postage & Handling

\$3 per Order

• EDUCATION

MS2710 MEMORY MASTER: Great program designed to sharpen up your short term memory skills by a combination of sounds and patterns. Great for young and old!

MS2730 CANTONESE TEACHER: Another good program in the language education section. Learn Cantonese Chinese with the help of your computer.

MS2750 PC-QUIZZER: Computer aided Instruction program suitable for teachers and parents to create and administer quizzes, with the option of using graphics! Includes sample quiz.

MS2751 TEST MAKER: Another sophisticated program for creating multiple choice tests. Includes comprehensive context sensitive help screens to make it easy to use.

• GAMES

MS2510 TWO BIT POKER: Addictive copy of the arcade poker game seen at many pubs. Great fun, and cheaper than playing it elsewhere!

MS2520 DEFENDOR: Great new version of the arcade classic.

MS2521 DISK CRASH: Great arcade quality game. Help your floppy disk avoid the evil magnets.

MS2522 STARSHIP: Action packed Star Trek type game. Command your starship which you use to defend your star bases.

MS2525 GIN!: Excellent computerised version of the old Gin Rummy game.

MS2530 NEBULA ADVENTURE: Great new adventure game from the Button stable

MS2550 FSPILOT: Great enhancement for Micro Soft Flight simulator. Print out specific flight plans and other info. Requires Micro Soft Flight Simulator.

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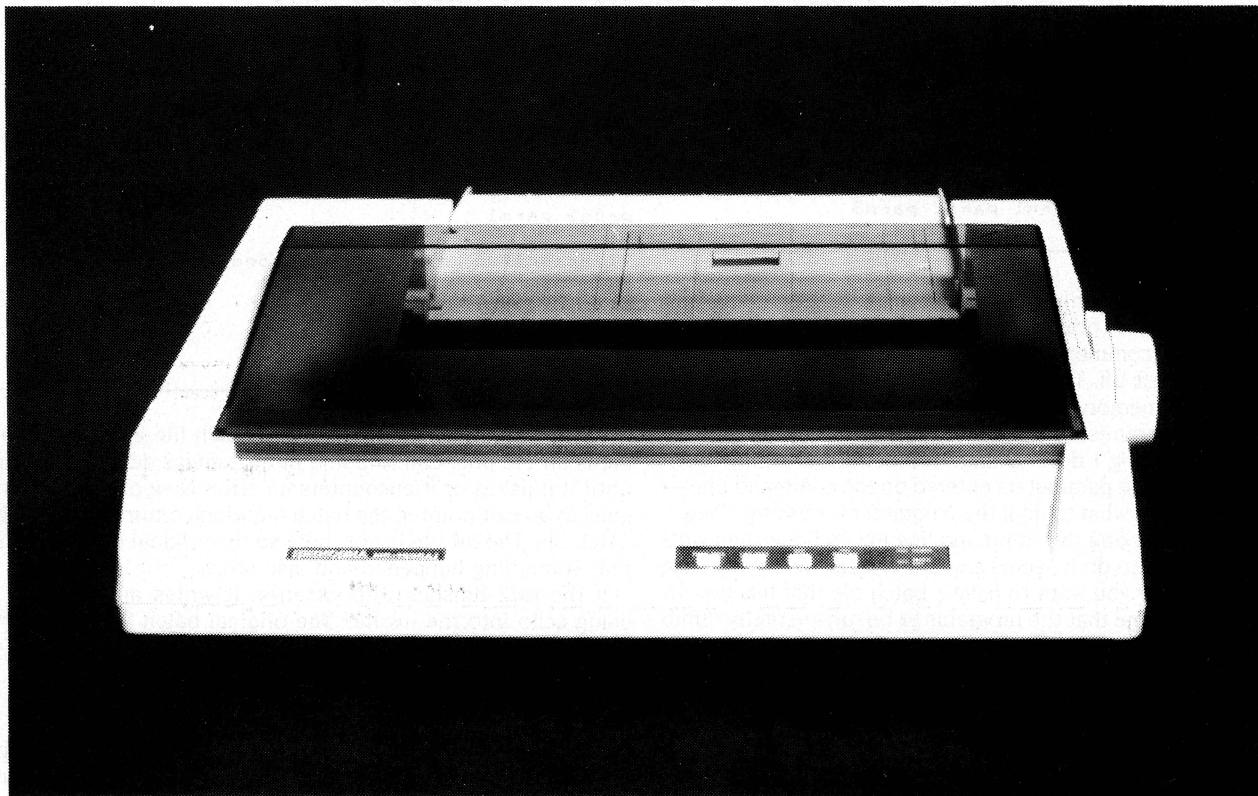
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AWA MP1300AI

Meet the latest addition to the AWA Seikosha printer range. The MP-1300 AI and MP5300AI offer PC users a whole new performance capability at a surprisingly low price. Both are IBM-PC and Epson compatible and you can upgrade the MP-1300 AI to colour at low cost.

- 300cps (draft), 50cps (NLQ).
- Impact dot matrix (9 pin Bi-directional logic seeking).
- IBM-PC and Epson compatible.
- Front panel margin setting.
- Download characters.
- Easy-to-Handle optional seven colour printing kit.
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* Excluding Print Head

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THE PROPHET

Well, the festive season is here. Hope Santa brings you something you want (need) and you have an excellent time (no drinking and driving though!). I am watching the Hardie 1000 in between punching the keys and it just made me think of the Net-Comm Radio Modem (reviewed in this issue) — there are a few Bulletin Boards on the 'air' already in amateur radio, I just wonder whether the new wave will be CB Bulletin Boards? At least then there would be no trouble with Telecom — but like everything else some government department will find a way to get involved, I guess.

I thought you might like to hear a joke that is printed in the Opus SysOp documentation, it fits quite well with Christmas and probably fits all year round —

Free? Does this mean I can't get a discount?

— Nunzio Opus By-Laws & Covert Action Committee

Laugh at it once or twice and then think about all the people you know who always want more for nothing!

Batching Along

Batching along, I thought I might have a change of pace this month and share my limited batch file knowledge with you and present some of my little tricks. You never know, I might actually help someone.

For those of you that do not have DOS 3.3 (and that new call command) the way that you can have a batch file execute another batch file is simple, try this —

COMMAND /C batname parm1 parm2 parm3

Batname is the batch file to execute (or another program) and the *parm1* ... and the others are the normal command line arguments; when the command finishes, your original batch file continues where it left off. The only problem you have is that there must be enough memory available for an extra copy of command.com and the program(s) you are running.

Another nifty thing I do is change the behaviour of my batch files according to the parameters entered on the command line — the only problem is what to do if the parameter is missing. There's no easy way of checking the command line in batch files and writing a program just to do it seems a waste of time. So, for the sake of the example say you want to have a batch file that has two arguments and assume that the programs to be run are pretty dumb (or dangerous) when they don't get arguments, try this —

```

echo off
rem - simple (very) parser in a batch file
if "%1==" goto usage
if "%2==" goto usage

prog1 %1 parm %2
prog2 %2
goto exit

:usage
echo usage: %0 parm1 parm2 .....
goto exit

```

That's keeping it simple — now if you enter the two arguments (even if they don't make sense), the if statements will allow your program to execute. If one or both of the parameters is missing the usage message will display, notice the %0 that will print the name of the batch file so you'll get something like —

usage: runit parm1 parm2

You can have as much of a message as you like, just echo away and drive the user nuts reading all of the message — easy isn't it!

Now that you can run batch files within themselves and also process parameters, how do you tell that the called file finished without error. Well, one way (it's a bit painful, but) is —

```

rem - main bat file

del bat2.ok
command /c bat2 parm1 parm2

if not exist bat2.ok goto error

del bat2.ok
...etc

-----
rem - bat2

prog1 parm1

if errorlevel == 1 goto nogood

echo ok >bat2.ok

...etc

```

The *del* before calling the second batch file is just in case the file is an old one. Call *bat2* and away it chugs doing your bidding until it finishes or it encounters an error. Now on error is simply goes to an exit point in the batch file which returns to the original batch file. The *.ok* file is not there so the original batch file knows that something happened and also stops.

If the *bat2* finishes without error, it writes anything you like using echo into the *.ok* file. The original batch file is happy and normally would just delete the *.ok* file and keep on truckin' with what it was doing. Not exactly elegant but — it works!

Registry News

During the month I received a letter of thanks from the Brisbane Microbee User's Group for allowing them to publish a condensed version of the Registry information in their newsletter.

I just want everyone to know that although the PAMS List is copyrighted, there are no objections to republication for non-commercial use, so long as the registry is acknowledged as the source of the information and the contact information for updates is included. If you make use of the lists please let me know, it keeps us all in touch with how things are going.

One of the gripes we sometimes get is that 'I know your list is

THE PROPHET

up to date . . . but I don't like the format'. Well, other than printing hundreds of different listings, and still not satisfying everyone the registry will soon start publishing a data file. The idea is that you pick up the data file and use your own program to format it as you wish. The draft format will be published shortly for comment and distributed as widely as I can get it — comments welcome.

The only thing to remember when reading the document will be that the format will be set so that as many languages/machines can use it as possible.

□

NEW SOUTH WALES

*** AMENDED ***

Alpha Juno BBS

Sysop: Kevin Withnall

FIDOnet: [620/701]

Phone: (02) 774-1543

Baud: V22.V22bis

Access: Reg.VA

Computer: IBM XT

DOS: PC-DOS 3.2

*** AMENDED ***

Arco-Tel BBS

Sysop: Alex Sardo

FIDOnet: [713/601]

Phone: (02) 683-3956

Baud: V21.V22.V22bis.V23

Access: Mem.VA

Computer: XT Clone

DOS: DOS

BBSsoftware: Opus

*** OFFLINE ***

Books BBS

*** AMENDED ***

Commodore C-64 BBS

Sysop: Graham Lee

Phone: (02) 664-2334

Baud: V21

Access: Mem.VA

Computer: C64

BBSsoftware: KBBS

*** AMENDED ***

Commodore Pursuit KBBS

Sysop: Warren Hillsdon

Phone: (02) 522-9507

Baud: V21.V22.V23

Access: Mem.VA

Computer: C64

BBSsoftware: KBBS

*** NEW SYSTEM ***

Down Under KBBS

Sysop: Glen Myles

Phone: (02) 674-6647

Access: Mem

Computer: C-64

BBSsoftware: KBBS

*** AMENDED ***

EasyComm Opus

Sysop: Michael Aldiholic

Phone: (02) 558-8804

Baud: V21.V22

Hours: Weekdays: 200 — 0700

Weekends: 24 Hours

BBSsoftware: Opus

*** AMENDED ***

First Nice MIDILINE

Sysop: Andrew Khoo

FIDOnet: [711/805]

Phone: (02) 868-4347

Baud: V22.V22bis.B103.TraillBlazer

Access: Public

Computer: IBM XT

DOS: PCDOS 3.2

BBSsoftware: Opus

*** AMENDED ***

First Nice MIDILINE #2

Sysop: Andrew Khoo

FIDOnet: [711/805]

Phone: (02) 868-4836

Baud: V22.V22bis.B103

Access: Public

Computer: IBM XT

DOS: PCDOS 3.2

BBSsoftware: Opus

*** OFFLINE ***

Galactic Federation

*** AMENDED ***

Matrix BBS

Sysop: Andrew Pike

Phone: (049) 38-5057

Baud: V21.V22

Access: Mem.Reg.LVA

Computer: C-64

BBSsoftware: BBS-64

*** UNKNOWN ***

Microlink BBS

*** AMENDED ***

Playground BeeBS

Sysop: Brett Selwood

FIDOnet: [712/504]

Phone: (02) 53-9688

Baud: V21.V22.V23

Access: Mem.Reg.LVA

Computer: XT Compatible

DOS: MSDOS 3.2

BBSsoftware: Opus

*** OFFLINE ***

Samilon

*** AMENDED ***

SMUC Bee RCP/M

Sysop: Bob Fryer

Phone: (02) 607-7584

Baud: V21.V22.V22bis.V23

Access: Reg.VA

Computer: Microbee

DOS: CP/M-80

BBSsoftware: PBBS

*** OFFLINE ***

Sorcim microS

*** OFFLINE ***

Sydney PC Users RIBM

VICTORIA

*** AMENDED ***

ACES High

Sysop: D Harvey

Phone: (03) 878-2918

Baud: V22.B103

Access: Public

*** NEW SYSTEM ***

Anzugs OPUS

Sysop: Miklos Bolvary

& Gordon Castle

FIDOnet: [631/326]

Phone: (03) 887-0678

Baud: V22.V22bis

Access: Public

Computer: XT Clone

DOS: PC-DOS 3.2

BBSsoftware: Opus

*** AMENDED ***

Big Tedd's Fido BBS

Sysop: Big Tedd

Phone: (03) 509-6067

Baud: V21

Hours: 2100 — 1800 Daily

BBSsoftware: Fido

*** AMENDED ***

DECUS

Sysop: Peter Hill

FIDOnet: [630/310]

Phone: (03) 62-5806

Baud: V21.V22.V22bis.V23

Access: Mem.VA

*** AMENDED ***

Eastwood R/ZSYS & PBBS

Sysop: Mick Stock

Phone: (03) 870-4623

Baud: V21.V22.V23

Access: Mem.VA

DOS: ZR-DOS

BBSsoftware: ZCPR3

*** AMENDED ***

Engbase CBCS

Sysop: Greg Furlong

FIDOnet: [631/325]

Phone: (03) 29-6336

Baud: V21.V22

BBSsoftware: Opus

*** AMENDED ***

EXCALIBUR-64 RCP/M

Sysop: Maurice Copeland

Phone: (057) 83-1964

Baud: V21.V22.V23.V23ORG

Access: Public

Hours: Weekdays: 08-12 16-23

Weekends: 24 Hours

*** AMENDED ***

Melbourne Data Exchange

Sysop: Robert Broomhead

FIDOnet: [631/321]

Phone: (03) 561-6556

Baud: V21.V22.V22bis.V23

Access: Reg.VA

BBSsoftware: Opus

*** UNKNOWN ***

MICROLINK

*** UNKNOWN ***

Mike's Bullboard

*** AMENDED ***

Omegatex Videotex Service

Sysop: Mark Gregson

Phone: (052) 22-1670

Baud: V23

*** ONLINE ***

Osborne Australian BB

Sysop: Craig Orr

Phone: (03) 890-4096

Access: Reg.LVA

*** AMENDED ***

Outer Limits BBS

Sysop: Peter Dorell

Phone: (03) 725-6650

Baud: V21.V22.V23

*** UNKNOWN ***

PC-Oasis System

*** UNKNOWN ***

TERMICOMNET

*** UNKNOWN ***

The Inner Sanctum BBS

*** ONLINE ***

The Village Idiot

Sysop: Rupert Russell

Phone: (03) 428-2178

Baud: V21.V22.V23.B103.B212

Access: Mem.LVA.Public

Computer: IBM XT Clone

DOS: MSDOS

BBSsoftware: Fido

*** UNKNOWN ***

Thunder-Net Amiga

QUEENSLAND

*** NEW SYSTEM ***

Concomp

Sysop: Viv Brunner

Phone: (07) 857-6000

Baud: V21.V22.V22bis.V23

*** AMENDED ***

Sidecar Express BBS

Sysop: Brendan Pratt

Phone: (075) 46-3252

Baud:

V21.V22.V22bis.V23.B103.B212

Access: Mem.Reg

Computer: Amiga Sidecar

DOS: MS-DOS

BBSsoftware: Focus

Info: User works node 7

SOUTH AUSTRALIA

*** NEW SYSTEM ***

S.A.C. BBS

Sysop: Austen Evans

Phone: (08) 387-0249

WESTERN AUSTRALIA

*** NEW SYSTEM ***

Kalgoorlie College RCP/M

Sysop: Graham Clark

Phone: (090) 21-7755

Baud: V21.V22.V22bis.V23

Access: Reg.VA

*** NEW SYSTEM ***

Oasis ST BBS

Sysop: Lou Schillaci

Phone: (09) 383-1480

Baud: V21.V22

Access: Mem.LVA

Computer: Atari

*** NEW SYSTEM ***

The Turing Circus

Sysop: Phil Sutherland

FIDOnet: [690/905]

Phone: (09) 385-2100

Baud: V21.V22.V23.B103.B212

Access: Public

Computer: PC/XT Clone

DOS: MS-DOS

BBSsoftware: Opus



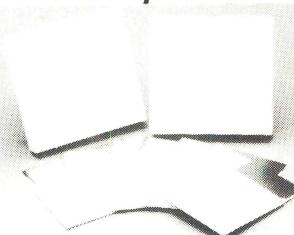
George Parry

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Enclosed please find cheque/ purchase ord/ credit card

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NAME _____

ADDRESS _____

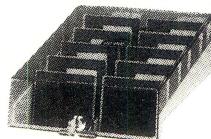
FREE

HS100 5.25 disk storage box. Value \$35

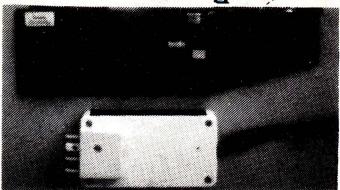


or

DD80L 3.5" disk storage box. Value \$35

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Maestro Supercard



Apple card modem with V21, V22 and V23! Auto-answer, Auto-dial, Auto-disconnect. Fully Hayes micro-modem compatible. If you have an Apple II+, IIe or IIGS then this is the modem for you. Available late September.

Introductory Special: \$349 inc!

GPA SuperModem

V.22BIS coming soon!!



Price Breakthrough: \$349. GPA22: \$449!!

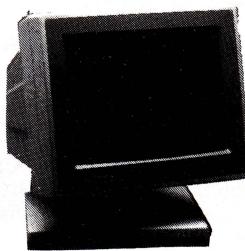
Our top-selling fully-featured modem. Australian-made standalone V21, V23 with optional V22 and V22bis.

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Features:

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- * Hayes compatible
- * 300 Bd full duplex, 1200/75 (VIATEL)
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- * V.22 BIS version due October (\$559)
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- * Cable to suit your computer \$30
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Our top-selling monitor. Korean made, very high-resolution. High quality construction. Available in Amber or Green, TTL or composite.

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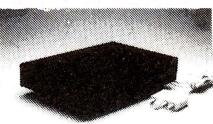
Prices: Normal monitor: \$199

Flat Screen/ Swivel Base: \$220

This is **Excellent Value!**

Bit Blitzer 123E

Everything you need in a compact, external modem. V21, V22 and V23 with auto-answer, auto-dial, auto-disconnect and full Hayes compatibility. Beautifully presented, well-documented and about half the price of its competition. Just arrived in stock. If you don't need the future expandability of the GPA SuperModem then the Bit Blitzer is the modem for you.



Introductory Special \$449 inc

Maestro Flyer



From the designers of the all-conquering GPA SuperModem comes a standalone V22 modem for the **embarrassingly low price of \$179.**

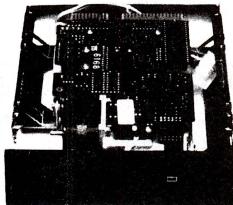
(Normally \$199)

The brief we gave Maestro: Design a "No Frills" V22 modem for existing modem users who need the speed increase but who don't want to junk their existing modem. And do it under \$200!

Do you need 1200/1200? If so the Maestro Flyer may be the modem for you. Nothing fancy. No auto anything. Just V22 120 cps transmission.

Tandon 20Mb Hard Disk

\$795 includes OMTI controller card!



The only hard disk for your IBM or compatible. We have used a range of hard disks and found the Tandon to be the most reliable. Very quiet and virtually crash proof, the unit is rated to 40G!

We have preformatted and tested each hard disk to at least 21Mb ready for installation. (Easy to install yourself) The OMTI controller utilises a 2000 character buffer to read and write whole tracks at a time which translates as a marked speed improvement over most other cards. The hard disk unit is in a 5.25" half-height format and is designed to withstand impacts to 40G. Designed for use in Olivetti portables the Tandon is made to the highest quality. Fits IBM and compatibles including Amstrad & Tandy 1000!!!

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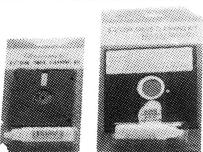
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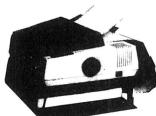
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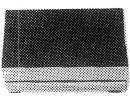


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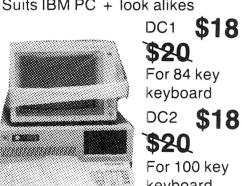


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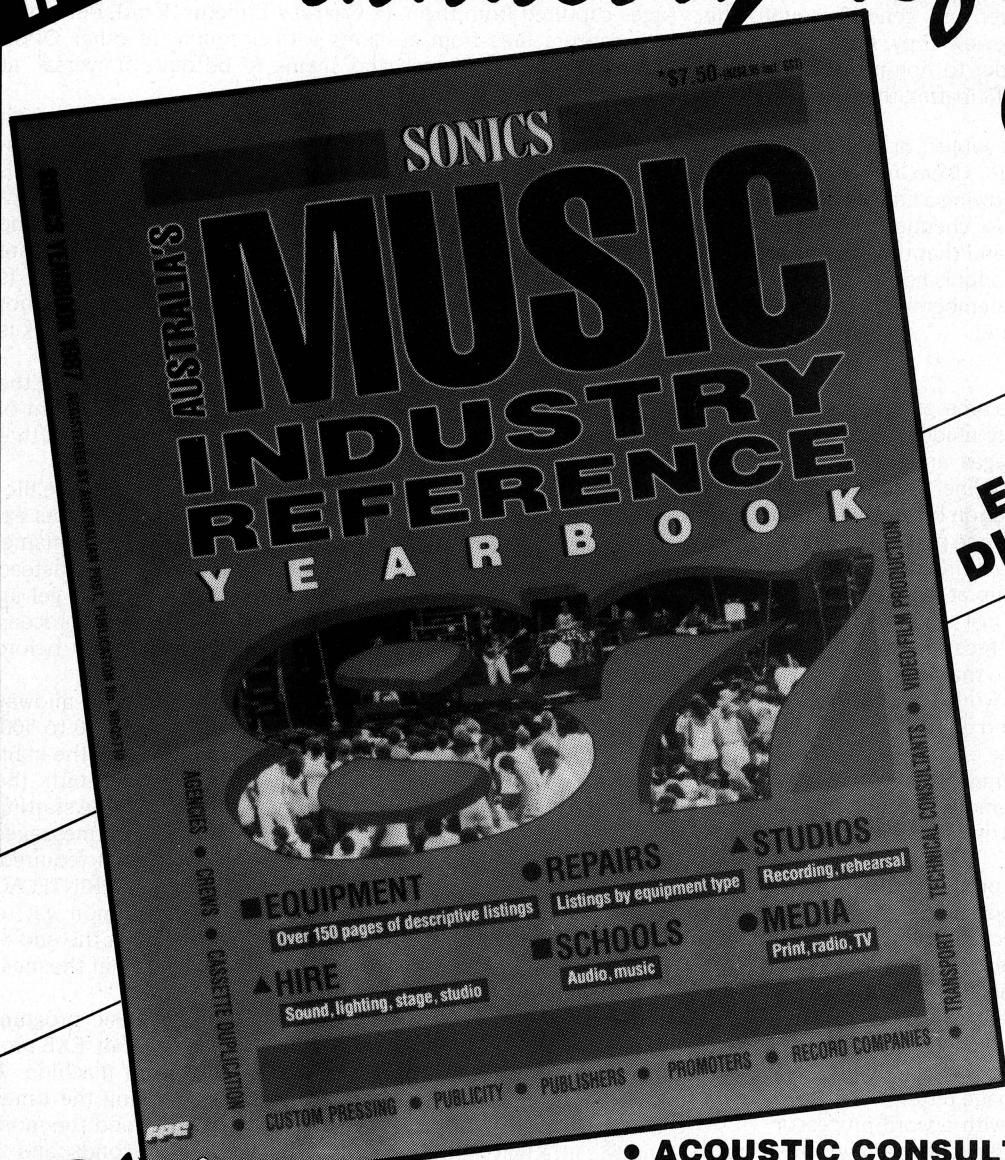
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User Groups

From time to time I have reviewed in IBM Underground various disks of Public Domain software, and generally quote the source from which I obtained the review copy. Most groups appear willing to supply an initial order to non-members and enclose with it a membership form anticipating that many will join the group.

Unfortunately the policies on this subject of individual groups can sometimes change. The Sydney PC User Group used to fill an initial order from non-members. Following a change of personnel, they, for a short period, returned a few cheques to non-members who wished to order disks. I understand that their policy has now been clarified and that they now will supply non-members with an initial order, and enclose with it a membership form. My apologies to anyone caught in the crossfire!

CLRECHO

The *Your Computer* Bulletin Board became part of the world wide OPUS network some time ago. Many readers were awakened to the Echomail system, where messages are passed around the world in a sort of free wheeling party line. I find it very useful to keep track of all sorts of new information by logging onto the YC, and other, bulletin boards, but I have one problem. I don't want to tie up a board too long and I really can't read the messages while on line. Sure, I can just about keep up at 1200 baud, but at 2400 baud the screen scrolls up just too fast.

My solution at first was to save all messages to disk, get off line quickly and print out the messages so that I could read them later — usually on the bus on the way to work. Printing them out 'raw' used an amazing amount of paper and on average only about two messages fitted to a page with all the extraneous screens, menus and so on that were mixed in. Stripping out menus manually with a word processor took a ridiculous amount of time and I decided that I would like a program which stripped out everything except the messages.

I also decided that I would like to print them in two columns at 15 characters per inch, and pack possibly eight messages to a page that way. While my beloved Microsoft Word can print in two (or more) columns, there was a problem. Messages are received 80 characters wide with a hard carriage return/line feed at the end of each line, and two 80 character lines will not fit side by side on a A4 page, even at 15 characters per inch. So what I needed was a program which recognised messages, threw away junk, and reformatted paragraphs by removing carriage returns. This would make it easy to print out very compactly with a word processor.

My solution was to write a little Basic program which stripped out all the extraneous material and optionally removed hard carriage returns at the end of each line within a paragraph of a message.

Now I could load the result into WORD, set the left and right margins to 0.5 cm, the top and bottom margin to 1 cm, the character size to 8 point (about 15 characters per inch) and the line spacing to 8 lines per inch. Word then reformats paragraphs, and most other word processors can do likewise. What took three to four pages on average now fitted onto one page, and was easy to read on the bus, or file for later information and reference. Other word processors could be used, but WORD makes it easy.

The program is CLRECHO.BAS, to CLeaR ECHOMail messages. Why Basic? Sure, a Turbo version written as a filter and using large buffer sizes would be much faster, but it is fast enough, was very quick to write, and can be used by anyone with a PC or clone. All

users at least have a Basic interpreter, but not all have a Pascal or Basic compiler. It was specifically written to clear a file of messages captured from the *Your Computer* Bulletin Board, but works with capture files from sessions with a couple of other OPUS bulletin boards in Sydney and seems to be quite universal, at least till the next major change to OPUS.

Running CLRECHO is easy enough. Start the compiled version by typing CLRECHO at the DOS prompt. Start the interpreter version by running the Basic interpreter (BasicA, GW-Basic or similar), loading the program into it with the command LOAD "CLRECHO.BAS", and then typing RUN. The user then specifies the name of the source and target files, and is asked if paragraphs are to be reformatted. If paragraphs are reformatted, the output is made ready for input to a word processor. If paragraphs are not reformatted, no change is made to message contents but junk is thrown away.

CLRECHO then just goes off and processes the file, putting the start and finish time on screens and keeping a running count of the number of files processed so that the user never worries that it has locked up.

CLRECHO is structured as follows. Lines 100 to 410 get the filenames and test open them to make sure that the source files exists, and also that no file exists with the selected target filename. Opening an existing file for output erases its contents, so instead we open the selected output file for input as a test. If we get an error indicating it does not exist we know we are safe to proceed without destroying an existing file. Then we must close it before reopening it for output.

CLRECHO will optionally strip carriage returns from midway through paragraphs and this is user selected in lines 410 to 500. Files are reopened for processing in lines 510 to 570 and the main processing loop is in lines 580 to 830. When processing starts, the PRINTFLAG is 0, and no output is made until the first line starting with From: is found. This changes PRINTFLAG to 1, and messages are then read and output, with formatting removed if required, until various characteristic phrases are found, turning PRINTFLAG to 0 and temporarily stopping output. The most common way to turn off output is by detecting the 'tearline', the line at the end of an OPUS message starting with — which indicates that the message is finished.

I have run CLRECHO both as an interpreter Basic program under DOS 2.1 on a bog standard 4.77 PC and also as an .EXE program compiled with QuickBasic 3.0 on the same machine. A 242315 byte file was reduced to 166620 bytes, taking the times shown in Table 1. This was a particularly large file, and the more typical 50 KByte file would take between 44 seconds and 3 minutes 46 seconds.

To save your typing fingers, CLRECHO is available on the YC BBS in CLRECHO.ARC, with source code and a compiled version along with minimal documentation. I don't claim it to be a programming masterpiece — the function did not justify more than a quick and dirty solution, but it works reliably and adequately fast.

Compiled:	Floppy to floppy	9min 21 sec
	Hard disk to hard disk	3min 41 sec
Interpreter:	Floppy to floppy	18min 54 sec
	Hard to hard disk	13min 9 sec

Table 1. Running CLRECHO on a standard PC gave these time for compiling and interpreting (a fairly large file).

Listing 1. CLRECHO.BAS is a handy routine for stripping extraneous material from a down loaded Echomail file, leaving only the messages.

```

10 ' ****
20 ' *
30 ' *     ClrEcho.BAS
40 ' *
50 ' ****
60 '
70 ' Copyright J Hepworth
80 ' Haberfield, NSW
90 ' October 1987
100 '
110 ' ****
120 ' Get Input and Output FileNames
130 ' ****
140 CLS
150 FILES
160 INPUT "Name of file to read    :"; READFILE$
170 '
180 ' see if input file exists
190 '
200 ON ERROR GOTO 1480
210 OPEN READFILE$ FOR INPUT AS #1
220 '
230 ' see if output file exists, so that
240 ' an existing file is not overwritten
250 '
260 INPUT "Name of file to write   :"; WRITEFILE$
270 ON ERROR GOTO 1500
280 OPEN WRITEFILE$ FOR INPUT AS #2
290 CLOSE
300 PRINT WRITEFILE$;" already exists"
310 CLS:FILES : GOTO 260
320 ON ERROR GOTO 0
330 '
340 ' close files, now that the input file
350 ' is known to exist and the output
360 ' does not exist
370 '
380 CLOSE
390 PRINTFLAG = 0
400 LINECOUNT = 1
410 '
420 ' ****
430 ' Are paragraphs to be reformatted?
440 ' ****
450 PRINT : FORMATFLAG = 2
460 WHILE FORMATFLAG >1
470     INPUT "Reformat Paragraphs (y/n)";FORMAT$
480     IF FORMAT$="Y" OR FORMAT$="y" THEN FORMATFLAG = 1
490     IF FORMAT$="N" OR FORMAT$="n" THEN FORMATFLAG = 0
500 WEND
510 ' ****
520 ' Open Files For Processing
530 ' ****
540 '
550 OPEN READFILE$ FOR INPUT AS #1
560 OPEN WRITEFILE$ FOR OUTPUT AS #2
570 '
580 ' ****
590 ' Main Processing Loop
600 ' ****
610 FOR COUNT = 20 TO 25
620     LOCATE COUNT,1
630     PRINT SPACE$(78);
640 NEXT COUNT
650 LOCATE 20,1: PRINT "Start ";TIME$;
660 LOCATE 20,20 : PRINT "Lines processed :";
670 WHILE NOT EOF(1)
680     LINE INPUT #1, A$
690     IF LEFT$(A$,1) = CHR$(10) THEN A$ = MID$(A$,2)
700     IF A$ = " " THEN A$ = ""
710     IF PRINTFLAG = 0 TEN GOSUB 850
720     IF PRINTFLAG = 1 THEN GOSUB 950
730     IF PRINTFLAG = 1 AND FORMATFLAG = 1 THEN GOSUB 1070
740     IF PRINTFLAG = 1 AND FORMATFLAG = 0 THEN GOSUB 1320
750     LOCATE 20,40
760     PRINT USING "#####"; LINECOUNT;
770     LINECOUNT = LINECOUNT + 1
780 WEND
790 PRINT #2,A$
800 CLOSE
810 LOCATE 21,1
820 PRINT "Finish ";TIME$;
830 END
840 '
850 ' ****
860 ' Throw away lines until first
870 ' line of a message is found
880 ' ****
890 '
900 IF LEFT$(A$,5) <> "From:" THEN RETURN
910 PRINTFLAG = 1
920 PRINT #2,""
930 RETURN
940 '
950 ' ****
960 ' Find lines not in a message
970 ' and turn off PrintFlag
980 ' ****
990 '
1000 IF LEFT$(A$,16)="Message Areas --" THEN PRINTFLAG=0
1010 IF INSTR(A$,"Highest:") THEN PRINTFLAG = 0
1020 IF LEFT$(A$,8) = "Msg.area" THEN PRINTFLAG = 0
1030 IF LEFT$(A$,19)="The MESSAGE Section" THEN PRINTFLAG=0
1040 IF LEFT$(A$,7) = "Select:" THEN PRINTFLAG = 0
1050 RETURN
1060 '
1070 ' ****
1080 ' Print lines routine
1090 ' Remove paragraph formatting
1100 ' ****
1110 '
1120 MSGPOS = INSTR(A$,"Msg #")
1130 IF MSGPOS > 0 THEN GOSUB 1510:RETURN
1140 MSGPOS = INSTR(A$,"Rec'd")
1150 IF MSGPOS > 0 THEN GOSUB 1510:RETURN
1160 IF LEFT$(A$,3) = "___" THEN GOSUB 1640 :RETURN
1170 IF LEN(A$) > 0 THEN PRINT #2,A$;" ":" BLANKLINES = 0
1180 ' Put a CR/LF after header lines
1190 IF LEFT$(A$,3) = "To:" THEN PRINT #2,""
1200 ' IF LEFT$(A$,7) = "Subject" THEN PRINT #2,""
1210 IF LEFT$(A$,5) = "From:" THEN PRINT #2,""
1220 IF INSTR(LEFT$(A$,5),>) THEN PRINT #2,""
1230 '
1240 ' put 2 CR/LF between each paragraph
1250 '
1260 IF LEN(A$) > 0 OR BLANKLINES > 0 THEN RETURN
1270 PRINT #2,""
1280 PRINT #2,""
1290 BLANKLINES = 1
1300 RETURN
1310 '
1320 ' ****
1330 ' Print lines routine
1340 ' Keep paragraph formatting
1350 ' ****
1360 '
1370 IF LEN(A$) > 0 THEN PRINT #2,A$;" ":" BLANKLINES = 0
1380 IF LEFT$(A$,3) = "___" THEN PRINTFLAG = 0
1390 IF LEN(A$) > 0 OR BLANKLINES > 0 THEN RETURN
1400 PRINT #2,""
1410 BLANKLINES = 1
1420 RETURN
1430 '
1440 ' ****
1450 ' error handler
1460 ' ****
1470 '
1480 PRINT READFILE$;" Does not exist"
1490 RESUME 150
1500 RESUME 320
1510 '
1520 ' ****
1530 ' split header lines
1540 ' ****
1550 '
1560 PRINT #2,LEFT$(A$,MSGPOS-1) :
1570 PRINT #2,MID$(A$,MSGPOS) :
1580 RETURN
1590 '
1600 ' ****
1610 ' print 'tearlines'
1620 ' ****
1630 '
1640 PRINTFLAG = 0
1650 PRINT #2, ""
1660 PRINT #2, A$
1670 PRINT #2, ""
1680 RETURN

```

MICROBEE FILE



Plant a BEE in the Garden

If you bought your Microbee three years ago, you may have been given a sales pitch which expounded the virtues of this modern technology. This great little gizmo with intricate circuitry, ports, bytes and bits was about to change your life. Not only would it number crunch and wordprocess its way through your business needs, it would also be able to entertain your children, help your wife with the cooking (how sexist), and on its day off, wash the dog, calculate your loss on the stock exchange and leap tall buildings in a single bound. Amazing stuff!

But were you ever promised that your purchase would enable you to design or redesign your garden? If you weren't promised it then, you are about to be promised it now... and unlike some of the more lofty aforementioned claims, it really is possible.

For many of us, growing plants is a haphazard affair. We are given a small cutting from Aunt Molly's garden, to find that within a month it has taken over the whole back yard. We despair, hack our way through the morass of branches and leaves and trot off to the local nursery. We pick out the healthiest and prettiest plants, take them home and plant them with TLC in the front garden. They all die in a week! We are spent both physically and financially and threaten to concrete

the whole lot and paint it green!

You don't need cement, you need a little more patience, your Microbee (CP/M or MS-DOS) and a piece of software called Plant Pic by Arbodata, a Sydney based horticultural service company.

Put simply, Plant Pic provides an easy to use, practical and horticulturally sound program which allows the user to select planting lists (consisting of small, medium and large plants — ground covers, shrubs and trees) for each aspect of the garden.

It is not hard to come to terms with the fact that every garden has a number of different environments. To design a garden is to recognise these different niches and environments and to plant accordingly. There are few plants that will grow in every

position in a garden, so the task is to identify each of the different aspects and then match up suitable plants to fit the bill.

Plant Pic makes all of this child's play! You firstly nominate your various sections of the garden: front lawn, side garden, rockery, nature strip and so on, and then categorise them according to aspect, soil quality, drainage and other site peculiarities. Next, you indicate the sorts of features you want in say, the front rockery; for example, Australian natives with red flowers. You then flick the switch and voila — instant garden selection. It really is as simple as that.

Before you start thinking that this is all too much, and niches and soil types are beyond you, be reassured that the mode of selecting the characteristics of the site, such as soil type, quality, drainage and so on, is very simple to carry out and ample instructions are included in the form of an instantly accessible electronic manual.

The standard package, which forms the basis for this review, comes with a plant selection list of plant species available, and those which grow on the eastern seaboard of Australia. However, those reading this review in Andamooka or Cooktown, have no fear, you can obtain the correct Plant Pic for your region, as Arbodata have developed their garden suite for tropical, sub-tropical, warm temperate, temperate, cool temperate, cool and highlands climatic conditions.

Plant Pic allows the gardener to process a vast amount of information with little research time required... or knowledge for that matter. It also has the ability to print out the various relevant lists and plant specifications. This list can be taken along to your local nursery (impress the pants off the nursery person) and Bob's your uncle. The nursery will be able to fill your 'shopping list' with the numbers you need. Think of how many plants won't die this time because you selected the ones that will work in the given locations!

A word of caution! Be careful not to generate too many plant lists. You could severely prune your bank balance... have you seen the prices nurseries are charging these days? If you can't help yourself, ask for bulk discounts — it's your only hope!

The use of Plant Pic can go beyond the home garden and the home gardener. Because it is so professional in its design, it could very easily become a utility of a professional garden designer, a retail plant nursery, a landscape supplier, and indeed, the school teacher preparing a unit of study on botany or horticulture.

A Growing Future

According to Arbodata, it does not stop here. They are writing a series of additional programs to tack onto 'Plant Pic', in particular, 'Plant Diary' which will allow you to enter your plant selections, and those already established and growing in your garden, and it will tell you when to prune, fertilize, dig up and so on, according to the time of year and the plant type.

Also on the drawing board are more significant adventures into graphic design and Plant Pic type integration. More about that at a later date.

The software comes in the form of three main disks which contain plants of three different height categories — 0 to 2 metres, 2 to 4 metres and 4 metres plus, respectively.

It is important to note that Plant Pic is really a subset of a more elaborate software package called 'Plant Guide' which Arbodata produced a few years ago. The latter is a much more sophisticated package and is geared more for professional applications (by Councils and so on). It is priced at \$495 (taxed).

In all this is a truly marvellous program. It is not only easy, but fun to use. How about it for your garden? Need a little help from your old friend the Microbee? Spring is the right time to get stuck into your garden. How about it?

Product Details

Product: Plant Pic

Distributor: Arbodata, 791 Pennant Hills Rd, Carlingford 2118.
(02) 872 4955.

Runs on: CP/M and MS-DOS machines
Price: \$49.50 (one disk); \$99 (set of three).

Given such constraints, it took two members of an aspiring public broadcasting group, The Lower Clarence Media Society, to devise a cost effective and efficient method of receiving and disseminating information for broadcast. David Harrison and Neil Newman utilised Microbees and modems, Viatel and a tailored version of Telememo (accessed through a series of menus) to produce Netlink — the Public Broadcasting News and Services Network.

Their wish list for the system was no small order. It included an up to date and comprehensive news and weather service, messaging between member stations and a range of service providers. The database then grew and developed to such auxiliary services as a complete listing of Australian Bureau of Statistics information, a full catalogue of Australian Composers from the Australian Music Centre and the National Program Service (a Public Broadcasting Association of Australia service offering a supply of pre-recorded radio programs, a catalogue and ordering system, and library access for documentary or general research).

After consultation with AAP and certain Microbee Systems' technicians (in particular Gerard Hill, the author of the Telecom software) a unique tailor-made method of receiving and disseminating information was implemented. Netlink was born to provide country radio stations Australia wide with a news and a messaging system that was cheap, fast and efficient.

Take Two Modems and a Microbee

The system is set up as follows. Instead of using a dedicated news feed from AAP (for a cost of around \$6000) the system links in to the city based AAP microwave feed.

A 32K Microbee, fitted with special telecommunications software in ROM, is the base receiving machine. It is hooked up to a small dish antenna which is connected via a receiver/modem (this equipment is supplied by AAP) and caters for all of the incoming transmissions which are received at 300 baud as standard RS232 output.

The signals enter the Microbee via the parallel port, where the software translates the data and displays it to the screen. When the software encounters one of the preset header fields, for example 'Breakfast Roundup' it automatically goes into capture mode and stores all of the following information until the end of field is encountered. At this point, the

Free Information?

Most of us take for granted our radio and TV services. The information which is bought into our homes costs nothing more than the purchase price of the receiving equipment — the information that is transmitted is free. But this isn't so for those who wish to provide the service of broadcasting up to the minute news.

The larger radio and TV stations spend millions each year on dedicated lines and telex systems, which cannot be afforded by the smaller community and public radio services.

MICROBEE FILE

software ceases to monitor further data and immediately dials Austpac and logs into Telememo, using the 1200/300 baud Automodem connected to the serial port.

The software is designed to recognise the nature of the information it has captured, and logs into the appropriate areas of the database for correct and efficient dissemination of information.

Once the news item has been posted to the bulletin board, the computer disengages itself from Telememo and hangs up the Automodem. It then resumes monitoring the AAP signals for further bulletins. Data loss is minimal as the incoming information is at 300 baud, while the outgoing bulletins are sent at four times that rate, at 1200 baud.

If, however, the computer fails to reconnect to Austpac for a subsequent bulletin, the system is designed to continuously redial until connection is made. In the event of a disconnection while data is being transmitted, the system will hangup and start the whole procedure from scratch.

Public radio stations are encouraged to join Netlink, which currently caters for 40 members from as far afield as Darwin and Tasmania to Western Australia and stations along the eastern seaboard. Those interested should simply contact the Public Broadcast Association for details on how to get onto the system.

Of course to tap into Netlink you will need to have a computer with communications capabilities, and what machine is better suited for the job than a Microbee — in particular the 256TC!

The service is affordable by all country radio stations, as the connection costs to Telememo, determined by online time, are all at a flat rate — STD charges do not apply. On the average, a country radio station may spend \$5 per day which would allow them to take in the morning bulletins and update the news later in the afternoon. As a rough guide, a user could expect to be paying 50 cents a minute, which encompasses the Telememo time and AAP charges.

The Latest News for the Country

AT THE recent Public Broadcasters Association of Australia Conference, Net-link was awarded the Golden Reel Award for Technical Contribution to the industry. This award, akin to receiving a Gold Logie for television, is well deserved and ratifies the efforts of those associated with the project.

-=*[M A I N M E N U]*=-

THANKS TO MICROBEE SYSTEMS FOR THEIR ASSISTANCE WITH NETLINKS CREATION

(1) Check Mail	(2) Send Mail	(3) Service Providers
(4) Suggestion Box	(5) Password/ID Change	(6) User Directory
(7) TELEX	(8) EXIT NETLINK	(9) NEWSLINK

Your Selection: 9

Figure 1. The Main Menu — David Harrison and Neil Newman utilised Microbees and modems, Viatel and a tailored version of Telememo to produce Netlink.

No.	Delivered	From	Subject	Lines
1 Sep 3	4:09	NEWS.TEAM	BULLETIN	144
ALL ITEMS ARE AS SUPPLIED BY AAP NEWS SERVICE AND ARE OFFERED IN ACCORDANCE WITH THEIR CONDITIONS OF USAGE.. AAP & PBAA ASSUME NO RESPONSIBILITY FOR USAGE.				
** PLEASE NOTE **				
NEWS BULLETINS HAVE THE TIME OF LODGEMENT NOTED IN THE MESSAGE HEADER. - PLEASE NOTE TIME OF LODGEMENT AND USE INFORMATION AT YOUR DISCRETION.				
***** PREPARE TO CAPTURE *****				
Posted:	Thu Sep 3, 1987	4:09 AM EST	Msg:	EJIIH-1628-7192
From:	NEWS.TEAM			
To:	NATIONAL.NEWS			
Subj:	BULLETIN			
03-09 0930 RADIO AND TELEVISION BREAKFAST ROUND-UP BREAKFAST ROUND-UP BREAKFAST ROUND-UP: HIGHLIGHTS OF THE AAP RTV FILE BETWEEN 0001 AND 0430.				
NUCLEAR SITES (LONDON) Australia has been listed amongst 13 countries as having sites where nuclear weapons are or could be manufactured documents circulated to computer salesmen by the US Government. A report in Britain's Guardian newspaper says the list is comprehensive guide to every potential nuclear weapon manufacturing plant in the West. It's reported to contain information the countries involved have allegedly tried to keep from the USSR, terrorists and nuclear protestors.				

SAFRICA TOLL (JOHANNESBURG)

The feared death toll in the South African mine disaster has risen to 62.

The main wings saw the left one which plunged down.

The mine's owners say the lift cage which plunged down a shaft was probably carrying 12 more workers than first reported. The owners say the 12 were from an outside contracting company and may have been on the lift which shot down a 1,367-ton shaft at the St. Helena gold mine in Hokkaido.

Figure 2. Part of the Breakfast roundup from Netlink. As well as news, the service gives country and public broadcasters the ability to tap into libraries and databases to research documentaries and the like. Member stations will also be able to talk to each other and share news items and information.

Netlink is obviously a non-profit service ensuring that remoteness is no longer an economic disadvantage, nor a reason for rehashing the news from the local rag or two day old metropolitan newspapers.

Benefits All Round

Many people will benefit from Netlink. Country and public broadcasters will have access to up-to-date news and the ability to tap into libraries and databases to research documentaries and the like. Member stations will also be able to talk to each other and share news items and information to bring distant communities closer together.

The biggest boon, of course will be for the radio listener. Netlink has the potential to transform the average five minute news session into a professional twenty minute time slot, encompassing local, national and international news, right there on your country radio setting.

What's On The Boil

After chatting to David Harrison, it is obvious that Netlink is not going to rest on its laurels. There are many more developments on the way. Just recently, with the marriage of Telememo and Minerva to produce Keylink, members are able to access information from over 2000 libraries throughout the world, including the Library of Congress, via gateways. Information at your fingertips... literally.

Also with an international flavour, initial talks with the President of the National Federation of American Broadcasters indicate that there could be a link up with Alanet — the public broadcast sys-

tem in the States. If this takes off, we could see a real boom in international communications for public radio, opening all sorts of avenues for those involved.

My Microbee Week

A PRIMARY school teacher for 21 years and involved with computer education for the last five to six, David Hobbs has 'been through the mill' with the changing fortunes of computers in education. His work and achievements in this area are testament to the fact that Hobbs is not your average teacher.

Hobbs spends many hours at school and at home working with Microbees to improve the lot of not only his students, but also his colleagues. Currently, he is involved in a comprehensive inservice course for teachers at his school, at Kanwal on the Central Coast. His desire, through the formal weekly sessions and the informal 'drop-in' lunch time tutorials, is to help staff members become computer literate — to have a working knowledge of the system, and to become confident in its use. Sometimes he is often seconded to other schools during staff development days on computer education.

In the classroom, Hobbs utilises such programs as Simply Write, Story Maker and Printmaster as part of the 'process' approach to writing. He believes that the software available now is able to support most stages of the pupil writing process from drafting and editing to completion of

publication. Apart from word processing and associated packages, Logo Plus is used extensively as an aid to the development of problem solving skills.

At home, Hobbs has entered the world of MS-DOS with a Microbee Mitac. He utilises WordStar 3.3 to develop proformas for various classroom based teaching programs (reading, writing, and other word-processing activities) which may be adapted and updated when needed, while also eliminating rewriting.

For classroom management and collation of marks, he enlists the help of dBase II and of course, Alien is used extensively for transferring files between CP/M to MS-DOS.

His achievements involving computers and education include inservice materials on teaching strategies published by Primug, Online and Pitmans. He is also one of the Computer Education reference teachers for the Central Coast and has been a driving force behind a local micro-computer users group — Cencomug.

When asked about his hopes and aspirations, he focused on the need for planning for the future of computer education.

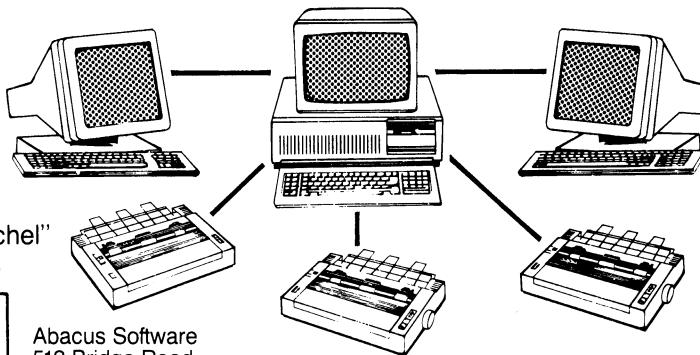
'I hope that what people have gone through in developing useful classroom applications the last five years is not wasted. There is also a practical necessity to keep sufficient serviceable equipment up-to-date in schools. Schools need to have a long term plan for equipment, depreciation, purchase and maintenance, otherwise we could very well end up teaching computer history with antiquated systems. Computer leasing schemes seem the best answer.'

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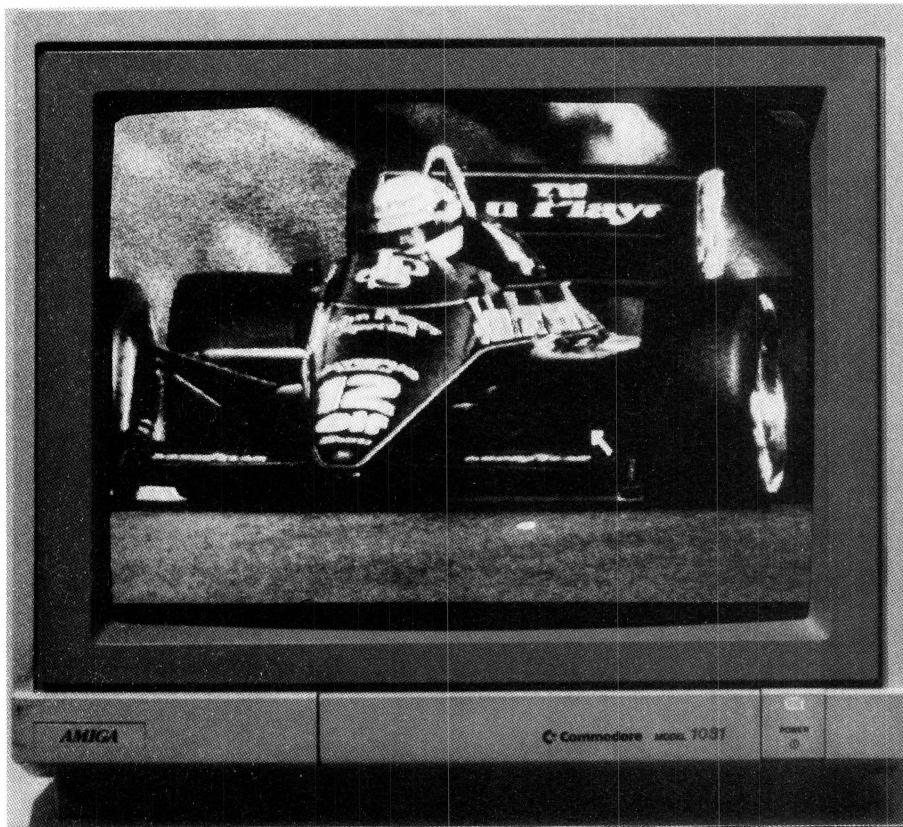
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YOUR AMIGA



The Amiga has truly come of age as a viable business PC with the recent release of WordPerfect, one of the top rating, and certainly top selling, wordprocessing packages for those 'other' business micros. Now it's available for the Amiga — and it's a full featured implementation too!

WordPerfect is a professional word processor with more features than you can poke a manuscript at. The package includes four disks containing WordPerfect itself, a Speller/Thesaurus, a disk full of printer drivers and fonts, and a training disk. A fully indexed 650 page manual, quick reference card, function key template and stick-on numeric keypad labels are also supplied. All the components are packed in a smart and practical presentation box.

WordPerfect

WordPerfect Version 4.2 (for 'those other business micros') was reviewed in Keith MacKay's Words, Words, Words series in our October '87 issue. □

WordPerfect features include filing and printing controls, merge facilities, maths functions, mail merge, and full macro definitions. It all takes a little effort to learn, but the end result is an order of magnitude ahead of the previous wordprocessors for the Amiga.

The user has the option of using control key combinations or the mouse to select and perform all manner of functions. The control key overlay (there is one supplied for the Amiga 1000 and another for the 2000), shows all the major functions and the key combinations required. The Alt, Shift and Ctrl keys are used to make four functions for each function key. This is the quickest way to select required functions like bold font, underline, and indent, though the mouse can also be used to select the same functions from pull down menus.

The list of printers to which WordPerfect can be directed is the most comprehensive I've seen, and from this list you can configure your own version of WordPerfect to handle up to six different printers with single key selection.

The screen display is plain and unpretentious as befits a professional product. This is not a toy and it doesn't look like one. Response to all functions is lightning fast which makes WordPerfect a pleasure to use. When the print function is selected, the screen becomes a little cluttered but after the first few times it becomes ob-

SmartKey allows the user to define single keys to produce anything from one word to several paragraphs at a single keystroke.

vious what is happening and is no longer distracting. Print jobs can be assigned priorities and run in batch mode.

Automatic backup of the current text can be selected to occur at any required number of minutes interval, and the program prompts you in a friendly manner to save your text on the way out.

I've been using WordPerfect on the IBM PC for a couple of years, and on the IBM Personal System/2 for a few months. Finally I'm able to use my favourite wordprocessor on my favourite computer, that should increase my output ... look out Jake! At \$595 untaxed WordPerfect is not cheap but it is far and away the best wordprocessor you'll find for the Amiga, or any other computer for that matter.

DigiPaint

Now, on to the other bit of brilliance I've had my hands on this past fortnight. DigiPaint is just superb. It's been a long wait since we started seeing ads in the US mags nearly a year ago, but it's finally here and it was worth waiting for.

DigiPaint is the perfect companion to the DigiView video digitiser. The software comes on a single disk inside a plastic package with a smallish, though complete, manual and the usual cards for registration and so on. According to the sticker on the package, Bruce Webster of Byte magazine called DigiPaint 'remarkable', and who am I to disagree?

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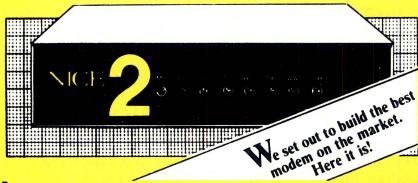
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TRADE ENQUIRIES WELCOME

This is not a painting or drawing package in the same way as Deluxe Paint II, but for its particular purposes it's equally as good. Digi Paint allows you to load any IFF standard image and then colour it using all 4096 colours, resulting in some of the most incredible effects I've yet seen on a computer.

Stunning results can be achieved by tinting a face which has been digitised in hi-res black and white by DigiView. The eyes and lips can be coloured, and eye-shadow and blusher shaded into position. I believe that several police forces in Australia are taking a long look at DigiPaint's potential in the Identikit area.

Stunning results can be achieved by tinting a face which has been digitised in hi-res black and white by DigiView. The eyes and lips can be coloured, and eye-shadow and blusher shaded into position.

It is possible to use DigiPaint to create drawings from scratch, and it has most of the common tools and brushes for the purpose. The real revelation comes when you select functions like 'shading', 'tint' or 'blend'. Selecting required colours from a rainbow selection of tones and hues is sheer bliss. I've been playing with DigiPaint for a while now but I get the feeling that I've only scratched the surface of its potential.

The Hold And Modify, HAM mode, of the Amiga uses six bit-planes to store an image. The six bits representing each pixel on the screen are coded to allow all 4096 colours to be displayed on the screen at once. This process means that the colour of one pixel is determined by, and in turn affects, the pixels on either side of it.

SmartKey

It's my great pleasure to review an Australian software product for the first time in this column. Craig Fisher of FBN Software has put together a very useful utility, at a realistic price.

SmartKey allows the user to define single keys to produce anything from one word to several paragraphs at a single key-stroke. Clumsy CLI commands like FORMAT DRIVE DFI: NAME THISDISK NOICONS can be replaced by, for example, Alt-F.

The SmartKey program lies dormant in memory until called to life by a single key-stroke. It then allows keys to be defined or a file of saved key definitions to be recalled. The clear and elegant manual provided with the package covers all aspects of use and installation of Smart Key makes learning and using the package very straightforward.

Those producing form letters can define whole paragraphs which can be called into your wordprocessor with only a couple of keystrokes. You really have to use this facility to believe just how convenient and time saving it can be. The SmartKey program can be kept on your Workbench disk and loaded by a command in the S/Start-up-Sequence file.

SmartKey is a very useful and efficient utility. You can buy it from your local Amiga dealer or by contacting FBN Software at PO Box 19 Woden 2602 ACT; (062) 861102.

Having been complimentary about the three excellent packages above, I must bring a balance to the article. A program called Hollywood Poker is being sold around the traps for a lot more than I think it's worth. This tasteless little number provides a not very good game of poker, requiring joystick, in order to remove the poorly drawn clothing from a digitised nude female. If you want to puke upon some techno-porn then download some from a bulletin board. Better still, buy yourself a Penthouse, it's cheaper and the pictures are better.

Game of the month has to be Faery Tale, a very clever mixture of adventure, animation and fantasy. The scenery and situations are superb, and the scenery scrolling is smooth and clear. All action is directed from a compass rose using a pointer driven by the mouse. The hero, or rather the heroes, walk around the scenery finding items, meeting interesting people and fighting various foes. A golden duck and a tortoise allow the adventurer to fly across the scenery at a great rate.

If it all sounds very weird, it is. It's weird and unusual and a great deal of fun. The accompanying music and sound effects are every bit as good as the images.

Wow! I'm still knocked out by being able to use WordPerfect on my Amiga. See you next month. □

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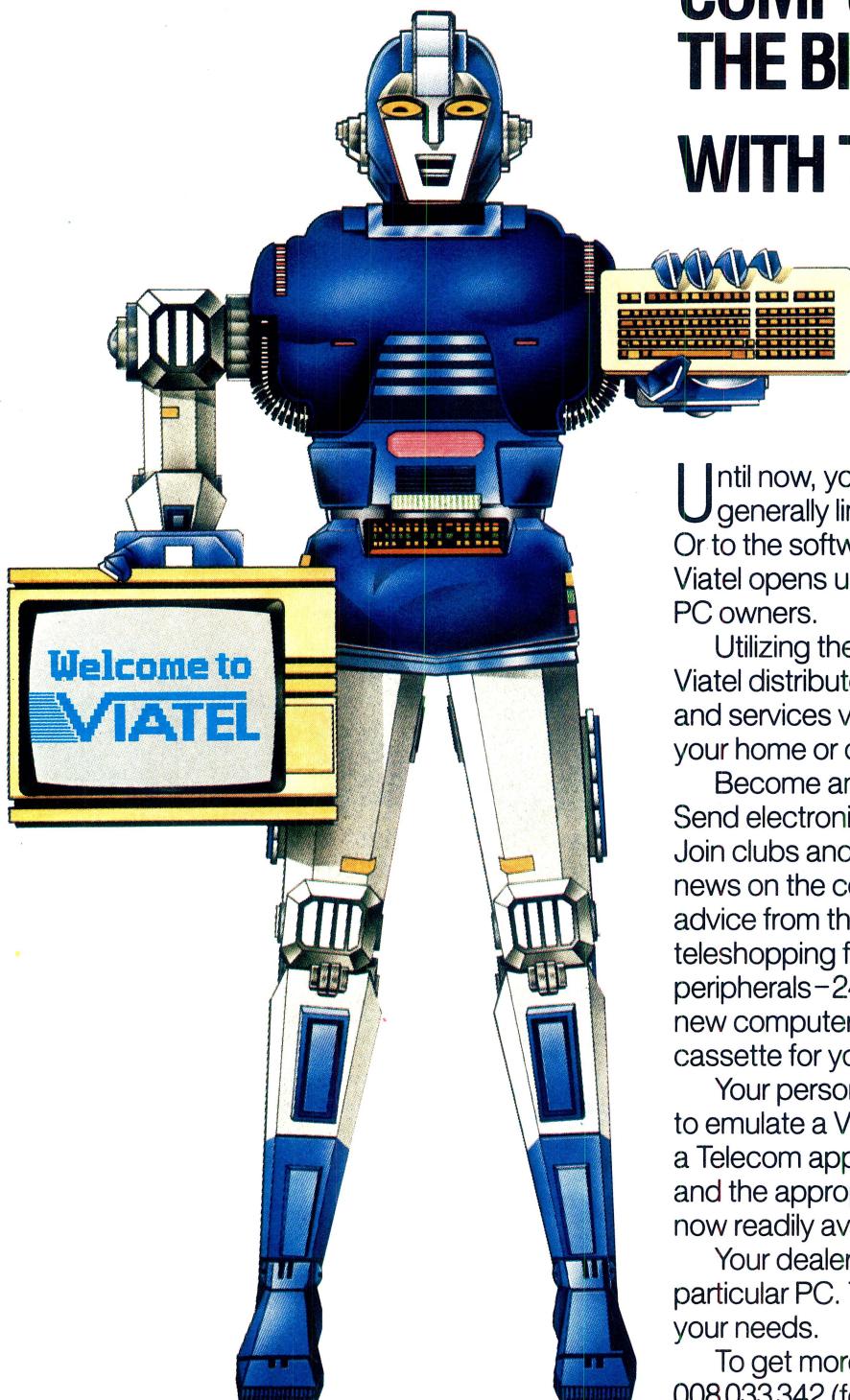
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YOUR ATARI

The Editor tells me I have to produce some more subroutines for the Atari ST library which was published in August. Being an obliging person (and liking the quiet life), I have put together two more subroutines that can be used for drawing circles, arcs and pies.

Before we get onto those, however, there was an error (or rather an omission) in my explanation of the Alertbox routine also in the August issue. In the calling routine, insert the following line —

```
35 default = 1 : Rem (or 2 or 3)
```

In the subroutine, change line 50330 to that shown in Listing 1.

The effect of these changes is that one of the button boxes will now have a thicker border than the others and can be selected by pressing the Return key, as well as clicking with the mouse.

Now to the circles and arcs. Circle is easy — having loaded in the subroutine, it is only necessary to specify the *x* and *y* co-ordinates of the centre point ('*xl*' and '*yl*') and the radius ('*rad*'), then simply gosub Drawcircle.

The arc and pie routine is a bit more complex. Firstly, we need to tell the subroutine whether we want an arc or a pie. This is done by setting the variable 'id' (as in Australia Card) to 2 for an arc and 3 for a pie.

Next we must specify the start and finish angles. The Atari convention is that 0 degrees is horizontal to the right of the centre point and the angle increases counter-clockwise. The angles for this routine must be specified in tenths of a degree and are defined in variables 'start' and 'finish'.

All that remains is to specify the centre point and radius, then we are in business.

The example shown in Listing 2, allows you to draw a circle with a centre of 100,100 and a radius of 100, clear the screen, then draw first an arc and secondly a pie with the same centre point and radius. The angle of the arc and pie will be from 30 degrees (start = 300) to 75 degrees (finish = 750).

Software

I recently looked at two programs which attack the education market from quite different viewpoints. The first is Math Talk from First Byte Software; the second is the new favourite for kids of all ages — Donald Duck's Playground.

```
50330 addrin# = peek(a#+16) : poke sintin, default
```

Listing 1. In the Alertbox routine published in the August issue, change line 50330 to the above. This, along with the insertion in the calling routine (see text), will give one of the button boxes a thicker border, enabling it to be selected with the Return key, as well as the mouse.

```

10      fullw 2: clearw 2
20      color 1,3,1,1,1
30      x1= 100: y1 = 100: rad = 100
40      gosub DRAWCIRCLE
50      gosub DELAY
60      clearw 2
70      start = 300: finish = 750
80      id = 2: gosub ARCPIE
90      gosub DELAY
100     clearw 2
110     id = 3: gosub ARCPIE
120     gosub DELAY
130     end
140     DELAY:
150     for time = 1 to 5000: next time
160     return
170     '
50530   ' ****
50540   '
50550   DRAWCIRCLE
50560   poke contrl, 11
50570   poke contrl+2, 3
50580   poke contrl+6, 0
50590   poke contrl+10, 4
50600   poke contrl+12, 2
50610   poke ptsin, x1
50620   poke ptsin+2, y1
50630   poke ptsin+4, 0
50640   poke ptsin+6, 0
50650   poke ptsin+8, rad
50660   poke ptsin+10, 0
50670   vdisys(0)
50680   return
50690   '
50700   ' ****
50710   '
50720   ARCPIE
50730   poke contrl, 11
50740   poke contrl+2, 4
50750   poke contrl+6, 2
50760   poke contrl+10, id :
      ' primitive ID: 2 = arc; 3 = pie
50770   poke contrl+12, 2
50780   poke ptsin, x1
50790   poke ptsin+2, y1
50800   poke ptsin+4, 0
50810   poke ptsin+6, 0
50820   poke ptsin+8, 0
50830   poke ptsin+10, 0
50840   poke ptsin+12, rad
50850   poke ptsin+14, 0
50860   poke intin, start
50870   poke intin+2, finish
50880   vdisys(0)
50890   return

```

Listing 2. This example draws a circle with a centre of 100,100 and a radius of 100, clears the screen, then draws first an arc and then a pie with the same centre point and radius.

Talking Maths

Math Talk is very good in parts, but has a couple of faults which really need to be addressed before it could be wholeheartedly recommended.

The program has a number of modules, which allow for a variety of activities. Firstly, the parent or teacher can set up sheets of problems in the four basic areas of arithmetic — addition, subtraction, multiplication and division. The problem sheets can be printed out or called up by another part of the program.

When a sheet of problems is called up they can be attempted one by one. If a mistake is made, the talking Professor Matt A. Matic will explain how to attack the problem. But — while the explanations given are quite sound and make sense to an adult, they follow a different format to that used in Australian (or at least West Australian) schools. In the lower primary grades, this inconsistency is sufficient to cause confusion and rejection by the young student.

The section of Math Talk which pits the kids against the clock in tackling 'tables' is far more successful. However, the facility for calling up a kid's score never seemed to work.

A further problem with Math Talk is the very slow reaction to mouse events. Ideally, there should be an instant reaction on screen, even if the processing for the next segment then takes place over a couple of seconds. However with Math Talk, nothing seems to happen for some time after the mouse button is pressed — you begin to wonder if the computer registered the click.

Overall, I see Math Talk as a program with great potential, but Version 1.0 is not yet a top product. If you wish to look at this program, get a primary school teacher to run through it with you before committing yourself to a purchase.

Disney Software

Donald Duck's Playground shows a refreshing approach to educational software — the kids think it's a game and learn without even knowing it. The big kids reckon it's pretty smooth too.

Donald has been around on a number of machines, but the Atari version seems to be the most successful. (I imagine the Amiga could have a reasonable version, too, but we won't talk about that!)

The basic idea of the game is that Donald wishes to equip a playground for his three nephews. In order to buy the goodies, he must get a job, earn the brass, then go to the various shops and complete the transaction.

There are four jobs available — train controller, packer at the fruit market, shelf stacker at the toy shop and airport luggage handler.

As a train controller, Don has to throw a series of levels to direct the train on the most direct route to pick up goods at a nominated station, then deliver them elsewhere. For each successful delivery, a small amount is added to his wages. (Note that this is all piecework and payment is only for results. The unions would have a fit!)

At the fruit market, our intrepid duck is standing in front of three large bins. As watermelons, pumpkins and lemons are hurled at him from the back of a truck, Donald has to catch them and place them in the right bin. Again it's payments for results. One complication at the fruit market is that the fruit doesn't seem to follow the laws of physics as it sails through the air — no nice parabolic curves here.

The toyshop requires Donald to position a ladder in front of the right part of the shelf, pick up toys from the conveyor, climb the ladder and put the toy on the shelf. This is hard. A further complication is that at frequent intervals a train will roar past, vibrating some of the stock down from the shelves. Donald must anticipate this and pull a lever which places a guard in front of the toys. For every broken item, money is deducted from his wages — where's the shop steward?

At the airport, packages on a conveyor must be picked up and thrown into waiting trolleys. The packages all bear three character airport codes, as do the trolleys. The airport sequence features a nicely animated jumbo jet landing then taxiing up to the apron.

Earning your money in this game is quite hard, especially at the toyshop. The game is configured to be played using keyboard (either numeric pad or cursor keys), joystick or mouse. Quite frankly, the mouse is much too hard for this application — the joystick is best.

Having earned all this money, Donald can go over to the shops and buy up the equipment for the playground. This includes slides, climbing ropes, ladders, old boxes and so on. Having selected an item, Donald then must pay for it by placing coins in the cash register. If he doesn't have the right change he must work out how much change is due.

The fun is just beginning, as you can now walk Donald over to the park, where one of his nephews is seen sliding down slides, jumping on old boxes and climbing trees.

At this point, one of the few faults with this program becomes apparent — at each change of scenery, the program goes out to disk to load the next screen. It is quite disconcerting to have young Hewie (or is it Louie?) sliding down a flying fox then have the whole thing freeze up for a few seconds while the disk drive does its thing.

Running the program from a RAM disk might overcome this problem, but I didn't have enough memory on my 520 ST for this to work. Even with a RAM disk there may be problems with the copy-protection on the master disk.

Donald Duck's Playground is a very good program indeed. It has excellent graphics, smooth action, catchy tunes and teaches money handling, arithmetic and hand-eye co-ordination. Three to six year old players will need help from mum or dad, which is the standard excuse in this household for hogging the action.

New Hardware

That West Australian innovation house, Tech Soft, has just announced its new 360 kilobyte 13 cm floppy drive for the 520 and 1040 STs. Why, I hear you ask, would anybody want to connect an old technology drive to an ST? Well it makes sense when I tell you that they have also released their IBM PC emulation program! That's right, the Atari ST can now be down-graded to run all that so-called 'industry standard' software.

Seriously, this is an immensely important innovation for people like me who work with IBM or clone computers and have Ataris at home. It is now possible to transfer data between the machines and to run IBM software such as Lotus 1-2-3, Wordstar, Microsoft Word and other well known packages on the Atari.

The execution looks a bit leisurely — I would guess it's just a bit slower than the original 4.77 MHz PC. However, for the type of use which this product is designed for, that is adequate. It's also really very impressive when you consider that the MC68000 processor in the Atari is not only carrying out all the calculations for the IBM programs, but at the same time pretending to be a totally different type of processor.

I hope to have full details of the IBM emulator package next month. In the meantime, consider that with this package, and with the current heavy discounting of Atari products, you can have an IBM and an Atari in one box for less than the price of a cheap clone!

SERVICES PAGE

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Contributions by Telephone: Contributors who have modems and suitable software (in the MODEM7/YAM mould — see our stories on Christensen Protocols in the May and June 1983 issues) can arrange direct transfer to our computers through our Bulletin Board system, which is on-line 24 hours a day, seven days a

week. Contact our office by phone for details on transferring material in this way.

Contributions on Disk: Contributions can be accepted in most disk formats, although some have to be converted outside our offices, which will add to the (often lengthy) delay between receipt and acknowledgement. The preferred medium is IBM standard format single-sided, single-density, 20 cm CP/M disks or IBM PC-DOS minifloppies. We can also handle, in-office, most soft-sectoried 13 cm disks, thanks to PC-Alien — so unless you have a particularly strange format, send it on disk straight from your machine. Please pack them extremely carefully if posting and label all disks with your name, address and phone number.

Listings: Unless it is absolutely impossible, we want listings produced on the computer. This reduces the risk of error — if the computer typed it, the computer probably accepted it. Print listings with a dark — preferably new — ribbon on white paper, and try to format the output to a narrow (40 characters) width. If they can't be produced on a printer, borrow a good typewriter — hand-written material is likely to sit around the office for a year before someone can find time to type it all out for you! Please provide an account of what the program does, how it works and so on. Any comments on the program should refer to the address, line number or label rather than to a page number. Any comments on modifying the program to work on other machines will be appreciated. Try to include a printout of at least part of a sample run if possible.

Style: All items should be typed (or printed) and double-spaced on plain white paper. We will only accept original copies — no photostats. Include your name, address, telephone number and the date on the first page of your manuscript (all manuscript pages should have your surname and page number in the top right-hand corner). Be clear and concise, and keep jargon and adjectives to a minimum. □

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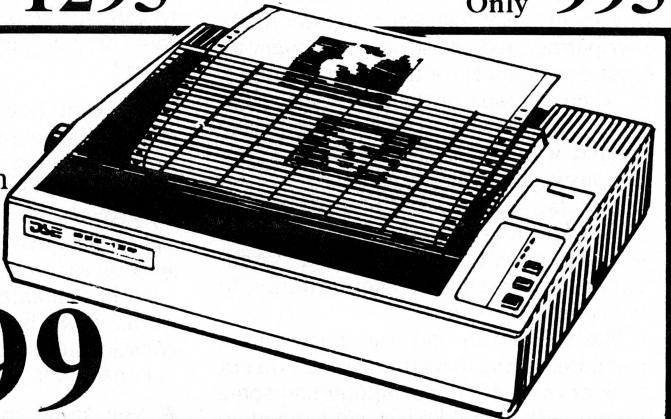
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CURSORY GLANCE

THE European Community (the Common Market to the rest of us) is working on a project called BRAIN (Basic Research in Adaptive Intelligence and Neurocomputing) which means it has the same functions as a human brain!

It is described as being able to see, learn, recognise objects and make judgements. Perhaps the reason for such a narrow description is that the project will be equipping robots.

The project is a response to the Japanese one which is designed to produce a 'human machine' and is costing \$2 billion over 10 years.

The Europeans claim they have a lead and are planning to spend an initial \$35 million. That lead will need to be very large unless the Europeans plan to increase their spending dramatically.

Perhaps one of these days someone from outside the computer field could work on making us all more human. The inhumanity of this society will not increase by 'humanising' robots and computers.

■ A friend, who is a confirmed Luddite when it comes to any technology which doesn't save her time, has just one response to computer technology. She is only interested in automating the home — her work is beyond the capacity of any mechanical process.

Besides, she enjoys it. Her response to each new invention is to ask 'Does it cook or vacuum?' Her resident computer freaks (her partner and her son) have bought almost every gadget for their home computer. Their whoops of delight at each new piece of software or hardware were greeted with, 'Does it cook or vacuum?' The answer, naturally was 'No'.

One day, however, the ultimate gadget arrived for the computer. Much hush-hush work, intensive programming and closed-door consultation led to her invitation to the computer room.

She stepped in and was greeted by a computer saying in its tinny voice 'I do not cook or vacuum.' The computer had some trouble with it and the last word ended up as 'maclume' but the message was clear.

■ To reduce your warranty problems and to stop you getting glassy-eyed about the reliability of your present system, keep a record of the hassles it gives you. This



should include the conditions surrounding the hassle, the attempts you made to fix it, the time and person-hours lost, the response you got from your support service, the resolution or otherwise of the problem and how to avoid it in future.

People who do this diligently find that the service people respond more sensibly to calls for help. The more clear the pattern of any problem, the more easily traced.

■ A recent Telecom letter to customers about changes in computerised billing went something like this: *The introduction of the new system is a massive exercise. It will inevitably involve some re-adjustment for Telecom people and for our customers. I would ask for your co-operation and patience during this early period.*

With suitable modifications, those words could be pasted into everybody's consciousness in any organisation which is considering computers.

■ You know someone is sincere when they tell you your cheque is in the electronic funds transfer system.

■ There is a program out which allows personal computers to communicate with mainframes. It is called The Corporate Tie.

Perhaps they'll come out with a matching one for networking the personal computers and call it The Old Boy Network.

■ OK, so you've got your laptop computer, your portable cellular radio phone, your beeper, your portable modem, your battery-powered printer and your 10 battery rechargers.

Do you have your Nuke Alert which gives readings on gamma and beta rays? Are beta rays given out by beta-test software? Do you have your cigarette lighter cum calculator? Don't smoke? What a pity, you would only be able to use it for one purpose.

Never mind, take the calculator which prints out messages on tape so you can attach them to the results of the calculation. And if you really want to go all out, get a Casio phone about the size of a cigarette pack, plus the watch which dials the phone number, and you're in business.

Dick Tracy must live in the US in 1987. His wrist TV phone is probably just around the corner.

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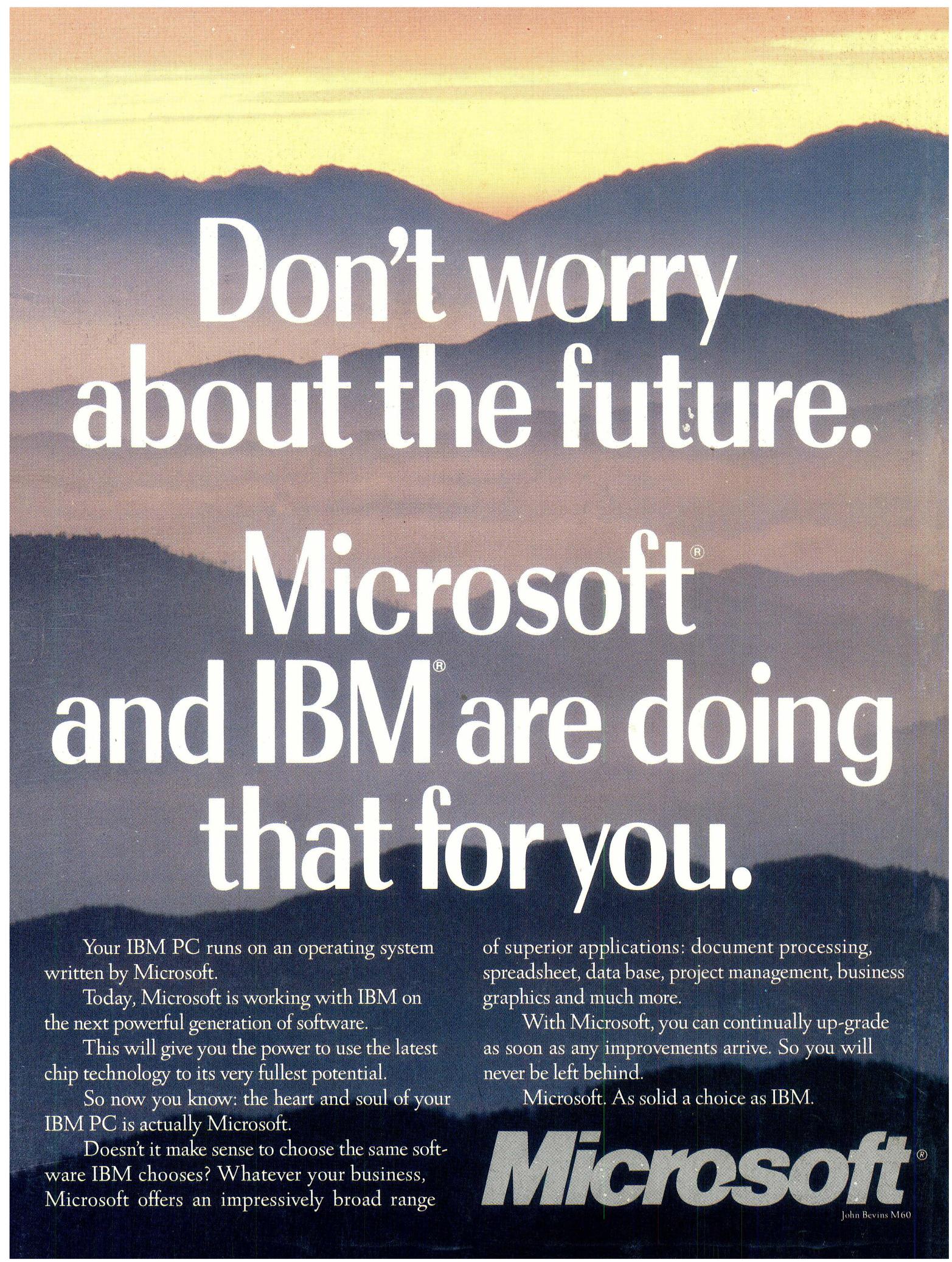
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